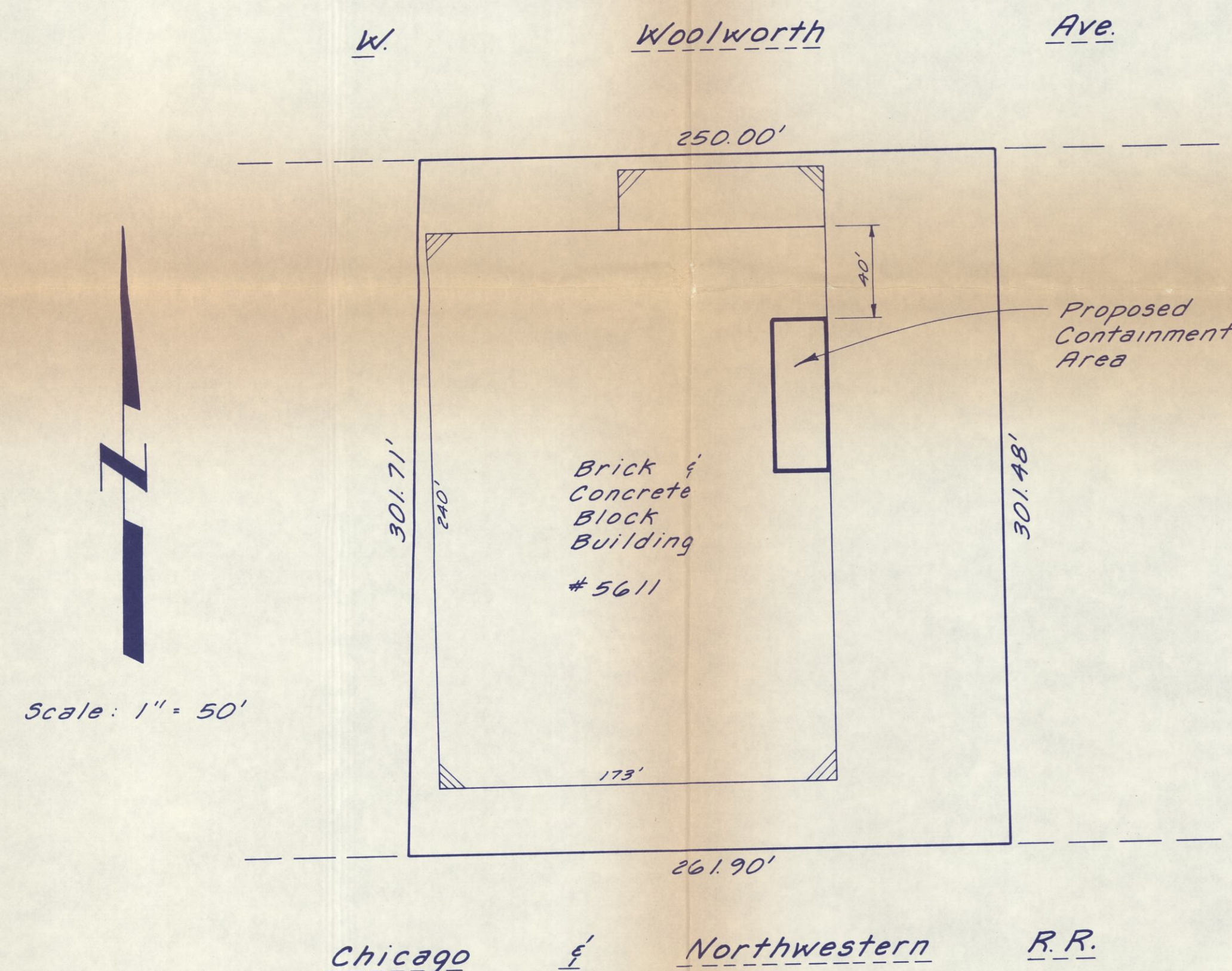


HAZARDOUS WASTE CONTAINMENT PLAN COMMERCE INDUSTRIAL CHEMICALS INC.

5611 W. WOOLWORTH AVE.
MILWAUKEE, WISC. 53218

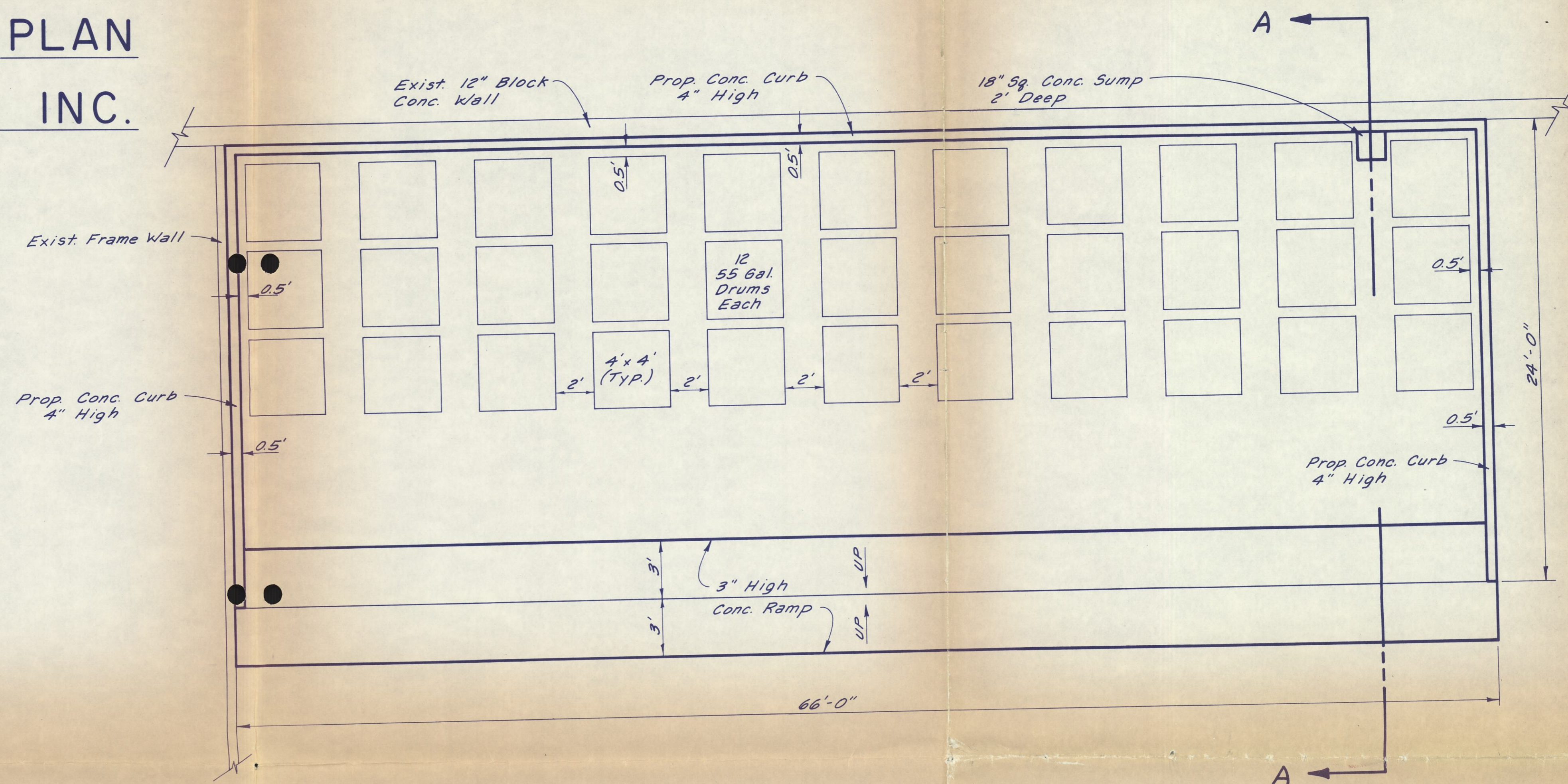


LOCATION MAP

DESIGN DATA

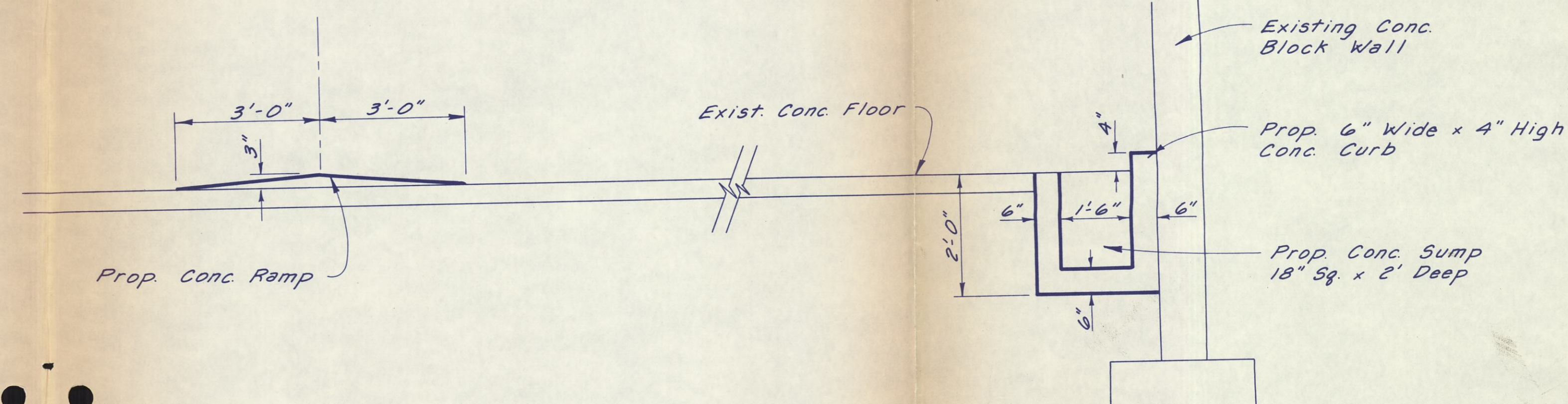
Containment Volume Req'd =
10% of Storage Volume
10% of 396 - 55 Gal. Drums = 2,178 Gal.

Containment Volume Proposed:
Area = 65.0 x 22.0 = 1,430.0 S.F.
Volume = 1,430.0 x 0.25 = 357.5 C.F.
= 2,681 Gal.



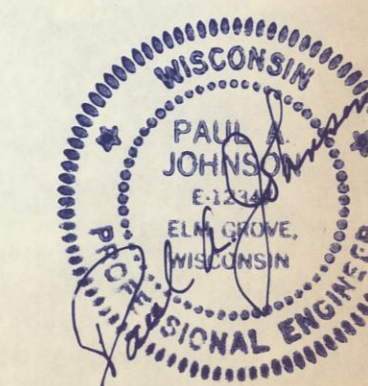
PLAN

Scale: 1/4" = 1'-0"

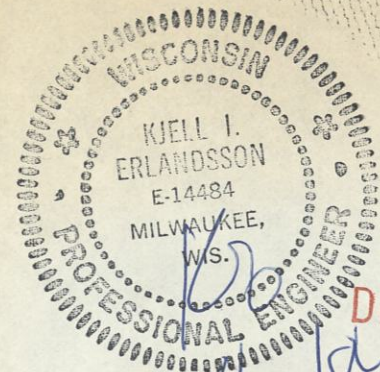


SECTION A-A

Scale: 1/2" = 1'-0"



R. A. Smith & Assoc. Inc. MUNICIPAL-INDUSTRIAL-SANITARY-CIVIL ENGINEERS SURVEYORS 17400 W. NORTH AVENUE BROOKFIELD, WISC. 53005 PH. (414) 786-1777		
CITY OF MILWAUKEE COMMERCE INDUSTRIAL CHEMICALS INC.		
HAZARDOUS WASTE CONTAINMENT PLAN		
SCALE: AS SHOWN DESIGNED BY: P.A.J. REVISED: 11-23-82	JOB NO: 10482 DRAWN BY: T.J.T. CHECKED BY: P.A.J.	DATE: 9-27-82 SHEET 1 OF 1

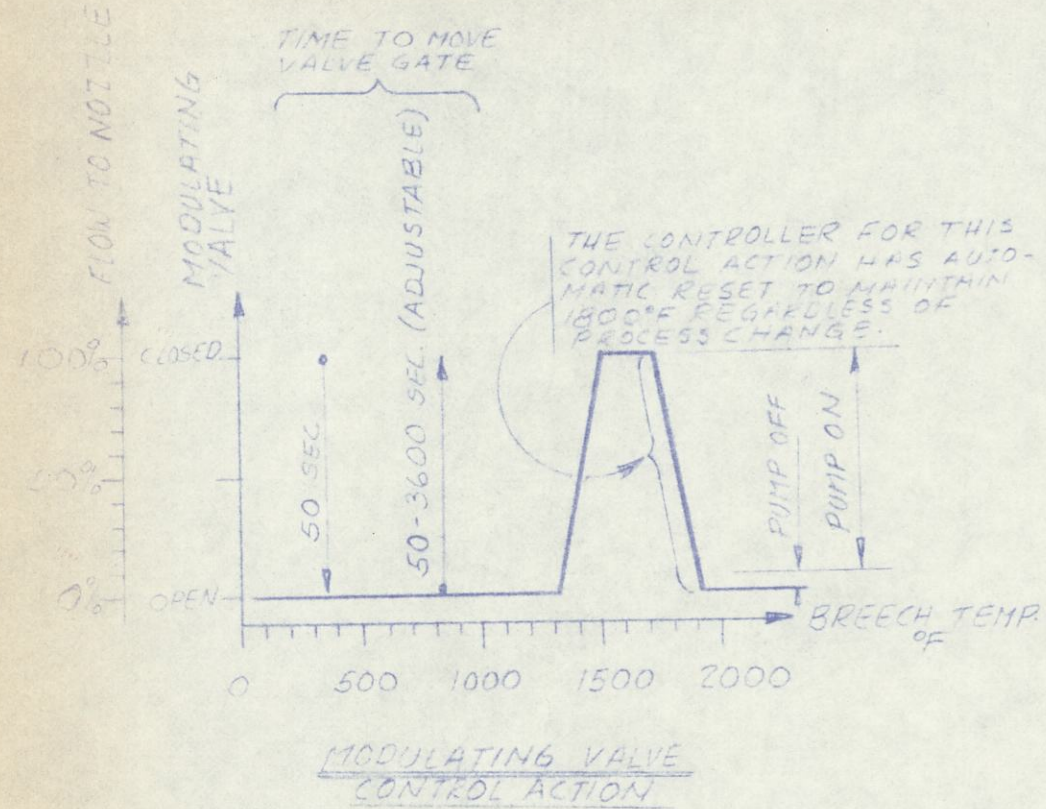


Confidentiality Withdrawn 4/19/84

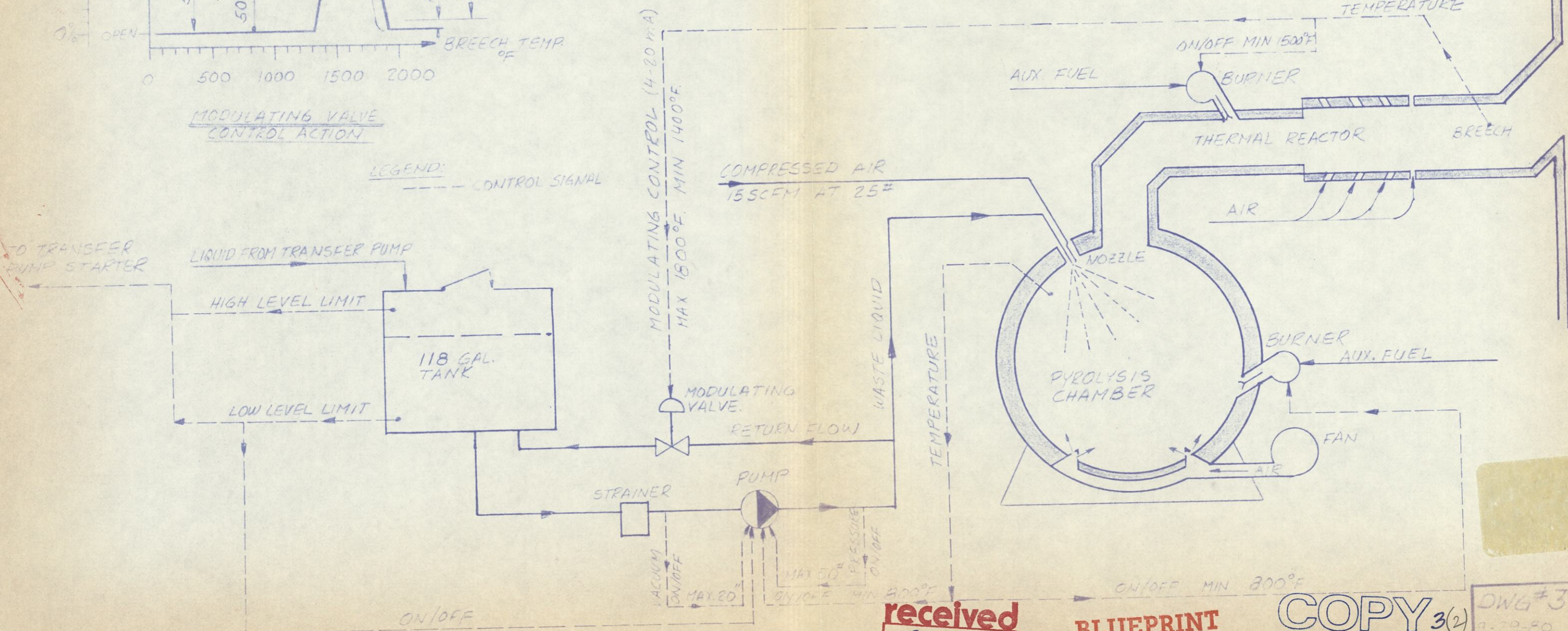
DEC 15 1983 CONFIDENTIAL

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KELLEY LIQUID WASTE FEEDER FLOW DIAGRAM



LEGEND:
--- CONTROL SIGNAL

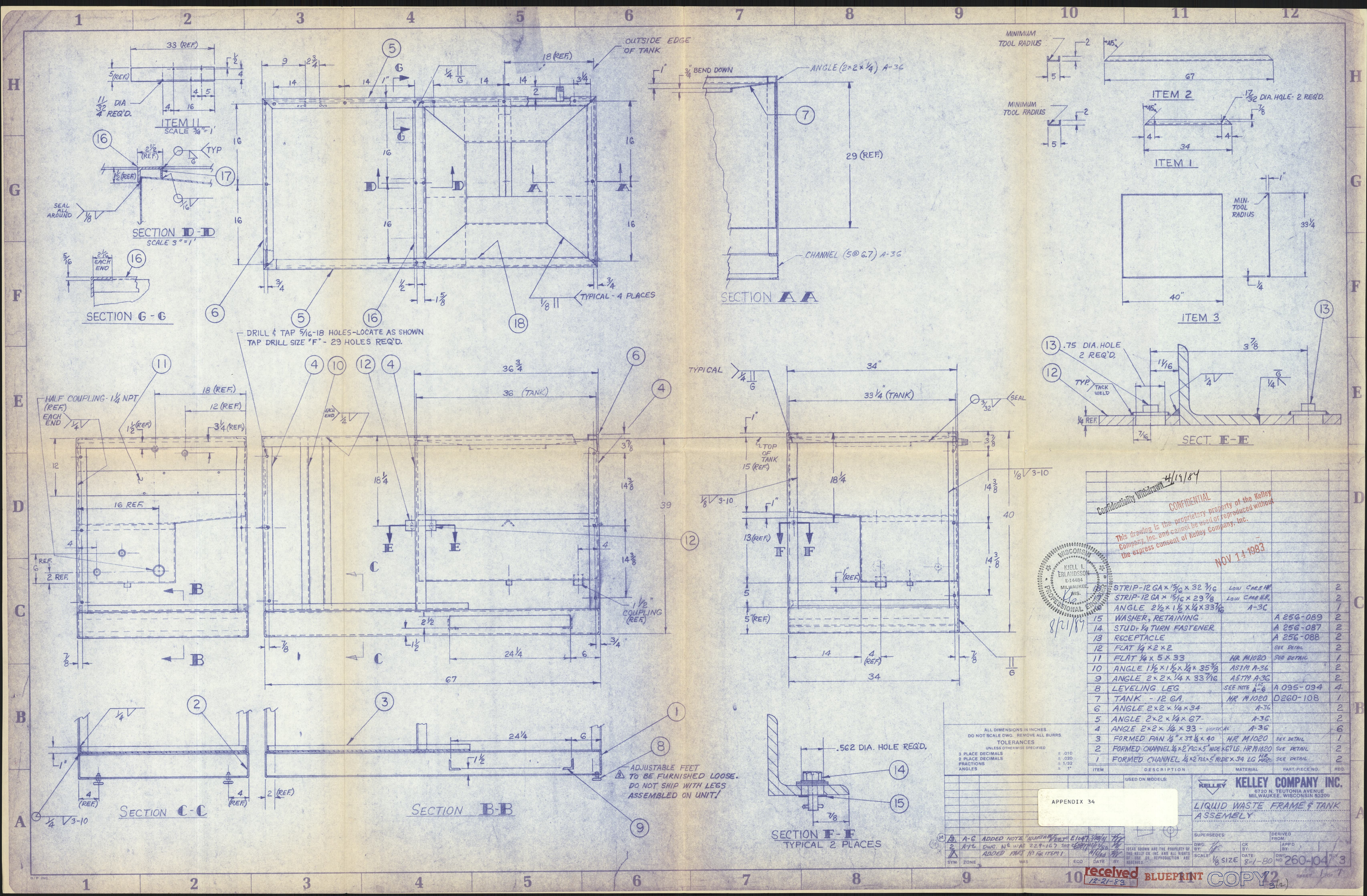


received
12-21-83

BLUEPRINT

COPY 3(2)

DWG#3B2
8-29-80 26



4/19/84

CONFIDENTIAL

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NOV 14 1983

STRIP-12 GA x 1/2 x 32 3/8	Low CARB HR	2
STRIP-12 GA x 1/2 x 29 1/8	Low CARB HR	2
ANGLE 2 1/2 x 1 1/2 x 33 1/8	A-36	1
15 WASHER, RETAINING	A 256-089	2
14 STUD, 1/4 TURN FASTENER	A 256-087	2
13 RECEPTACLE	A 256-088	2
12 FLAT 1/4 x 2 x 2	SEE DETAIL	2
11 FLAT 1/4 x 5 x 33	HR M1020	1
10 ANGLE 1 1/2 x 1 1/2 x 35 3/8	ASTM A-36	2
9 ANGLE 2 x 2 x 1/4 x 33 1/8	ASTM A-36	2
8 LEVELING LEG	SEE NOTE A-6	4
7 TANK - 12 GA.	HR M1020	1
6 ANGLE 2 x 2 x 1/4 x 34	A-36	2
5 ANGLE 2 x 2 x 1/4 x 67	A-36	2
4 ANGLE 2 x 2 x 1/4 x 33 - VERTICAL	A-36	6
3 FORMED PAN 1/4 x 33 1/8 x 40	HR M1020	1
2 FORMED CHANNEL 1/4 x 2 1/2 x 5 1/2 x 34 LG	HR M1020	2
1 FORMED CHANNEL 1/4 x 2 1/2 x 5 1/2 x 34 LG	HR M1020	2

ITEM	DESCRIPTION	MATERIAL	PART/PIECE NO.	REQ.
1	FORMED CHANNEL 1/4 x 2 1/2 x 5 1/2 x 34 LG	HR M1020		2
2	FORMED CHANNEL 1/4 x 2 1/2 x 5 1/2 x 34 LG	HR M1020		2
3	FORMED PAN 1/4 x 33 1/8 x 40	HR M1020		1
4	ANGLE 2 x 2 x 1/4 x 33 - VERTICAL	A-36		6
5	ANGLE 2 x 2 x 1/4 x 67	A-36		2
6	ANGLE 2 x 2 x 1/4 x 34	A-36		2
7	TANK - 12 GA.	HR M1020		1
8	LEVELING LEG	SEE NOTE A-6		4
9	ANGLE 2 x 2 x 1/4 x 33 1/8	ASTM A-36		2
10	ANGLE 1 1/2 x 1 1/2 x 35 3/8	ASTM A-36		2
11	FLAT 1/4 x 5 x 33	HR M1020		1
12	FLAT 1/4 x 2 x 2	SEE DETAIL		2
13	RECEPTACLE	A 256-088		2
14	STUD, 1/4 TURN FASTENER	A 256-087		2
15	WASHER, RETAINING	A 256-089		2
16	ANGLE 2 1/2 x 1 1/2 x 33 1/8	A-36		1
17	STRIP-12 GA x 1/2 x 29 1/8	Low CARB HR		2
18	STRIP-12 GA x 1/2 x 32 3/8	Low CARB HR		2

APPENDIX 34

KELLEY COMPANY INC.
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53209

LIQUID WASTE FRAME & TANK ASSEMBLY

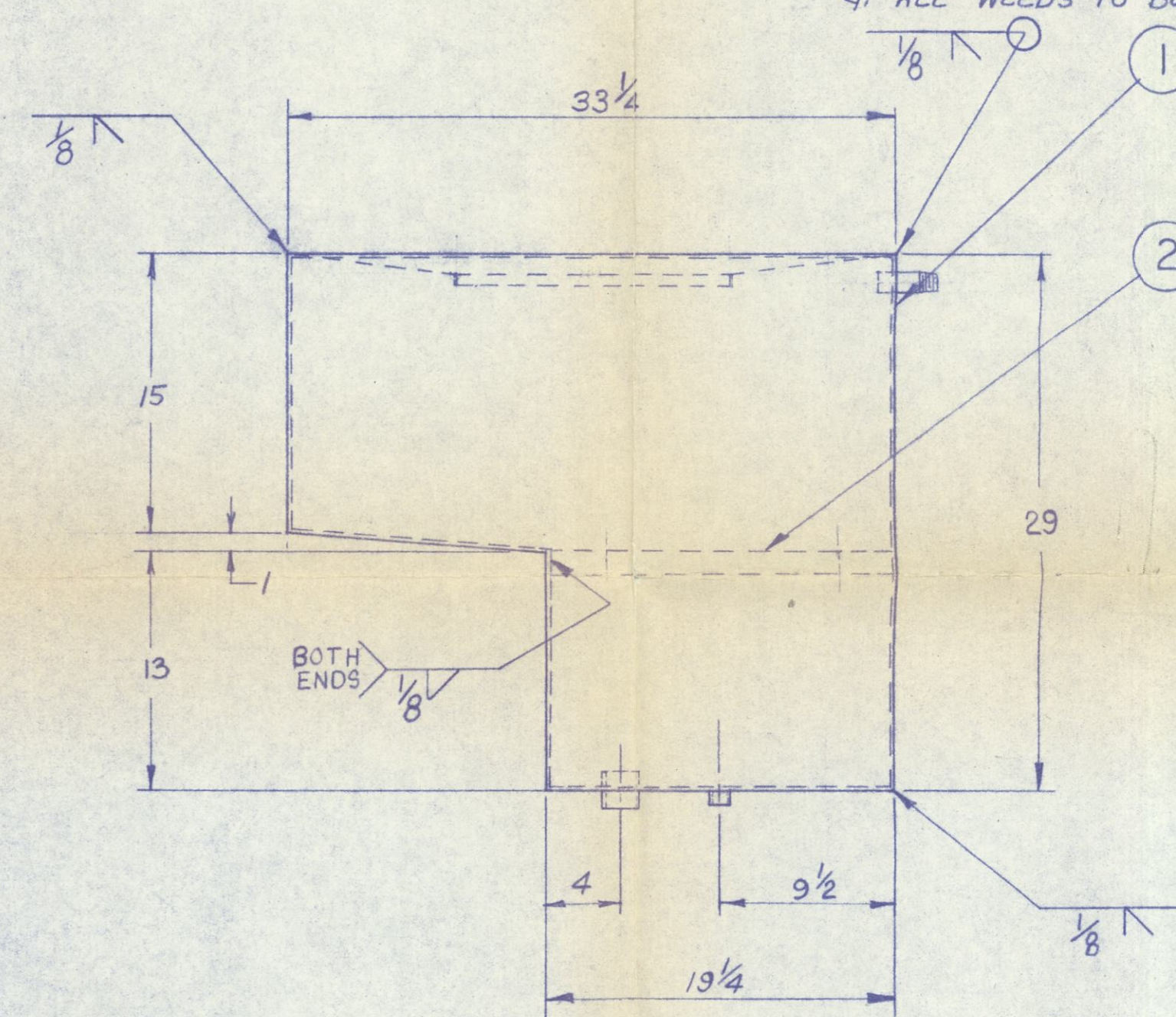
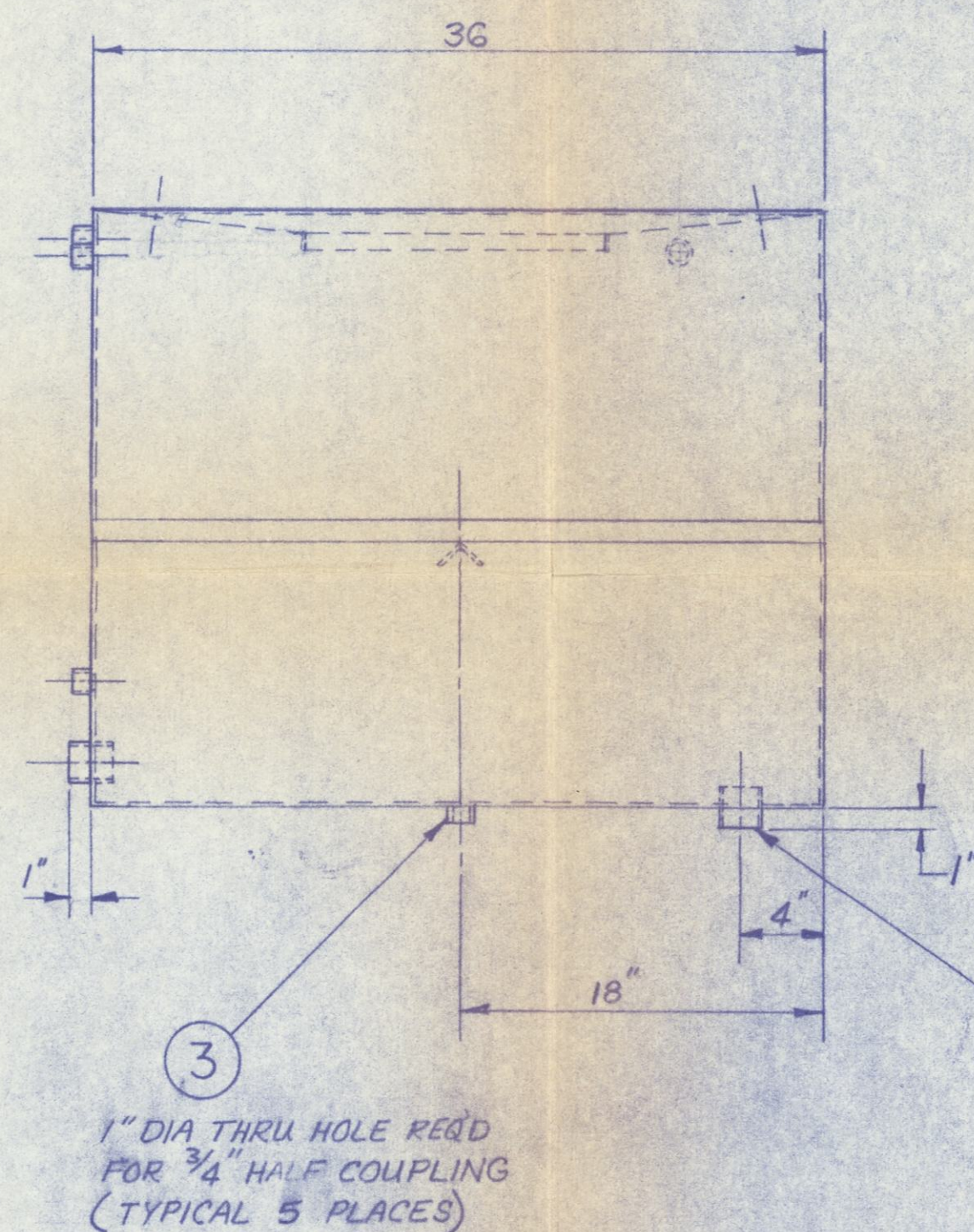
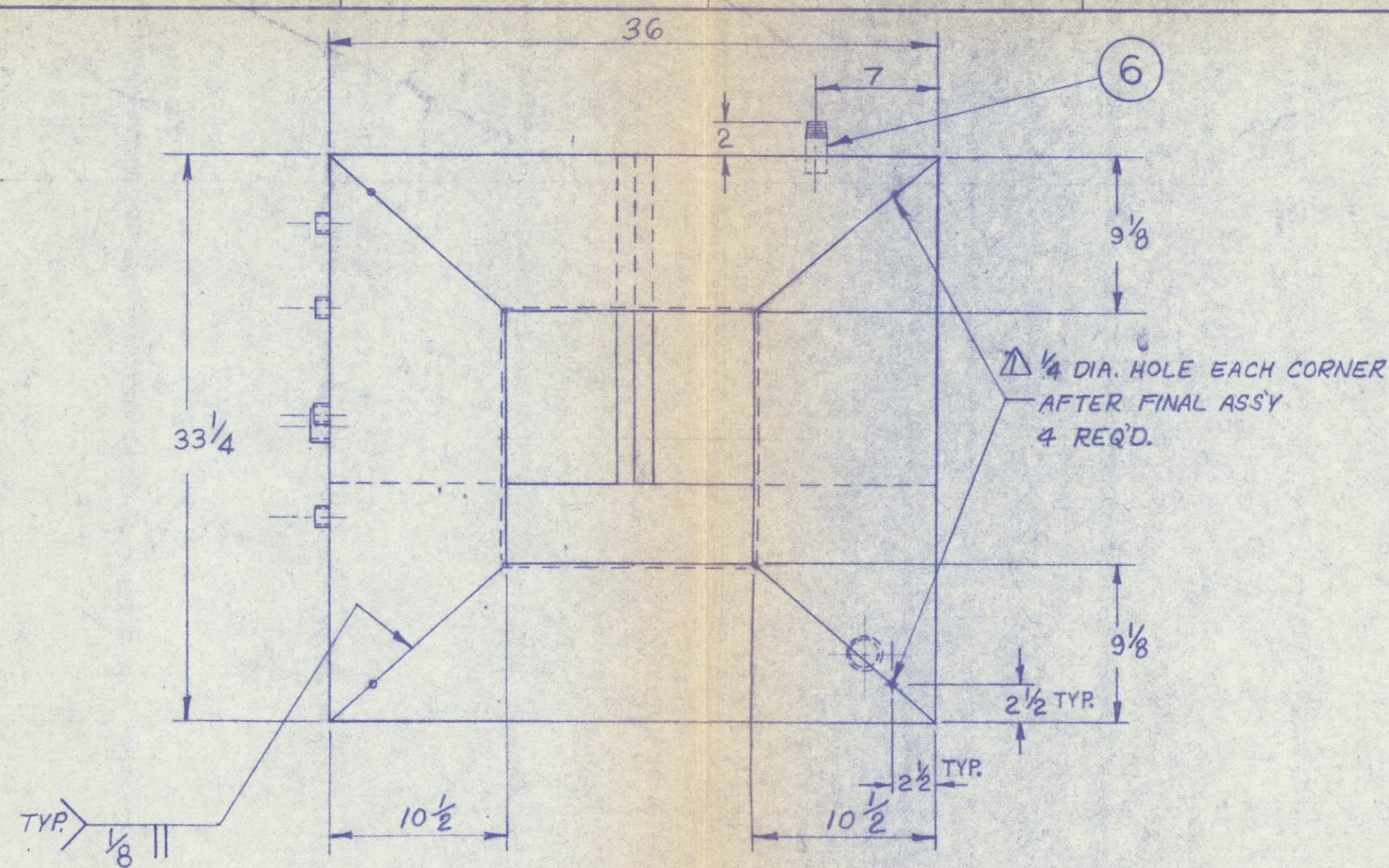
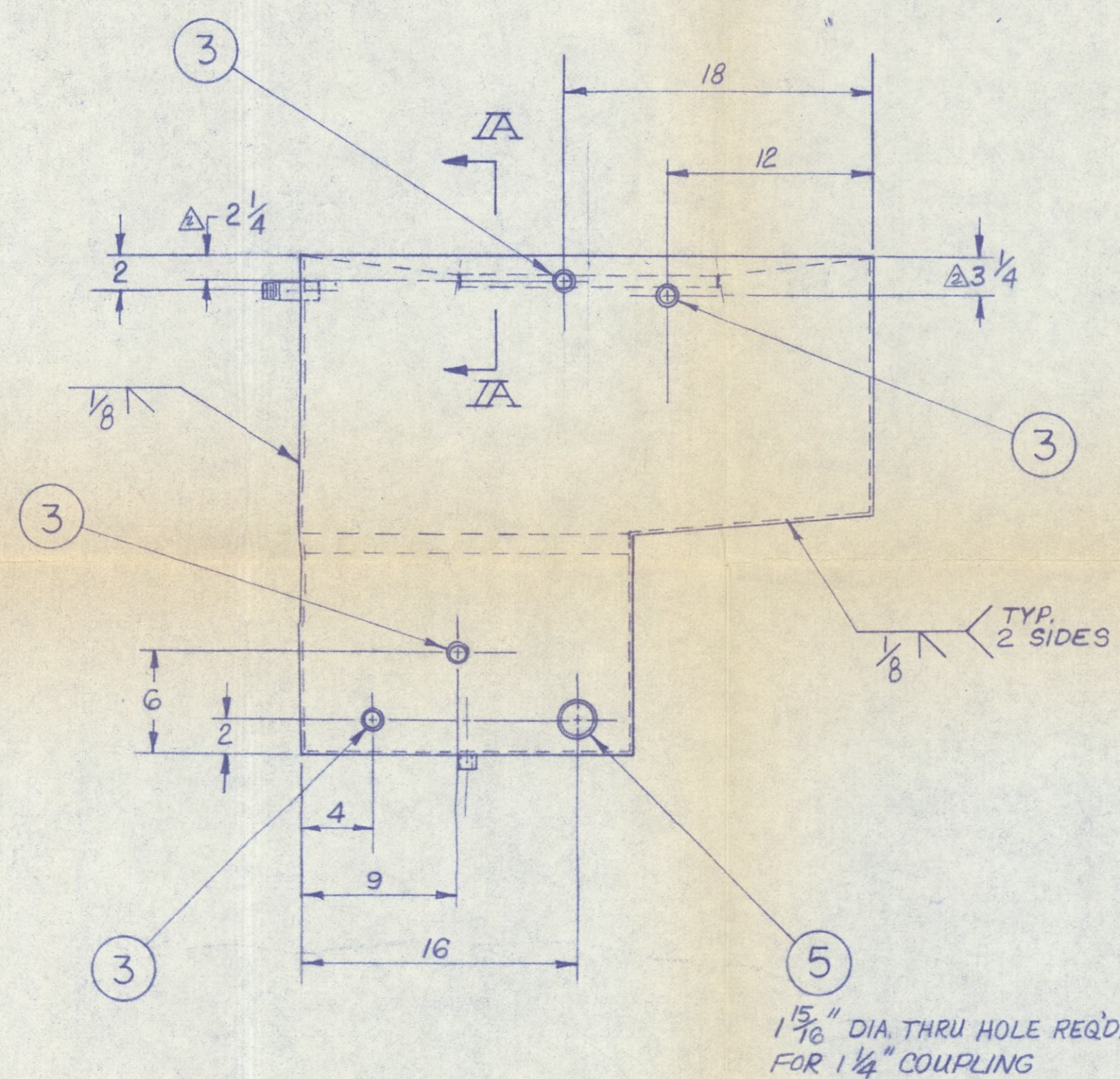
SYMBOLS: A-G ADDED NOTE "ADJUSTABLE FEET TO BE FURNISHED LOOSE. DO NOT SHIP WITH LEGS ASSEMBLED ON UNIT!"
A-12 DWG. NO. 229-167
A-13 ADDED PART NO. FOR ITEM 1

DATE: 8-1-80
BY: [Signature]
CHECKED BY: [Signature]
APPROVED BY: [Signature]

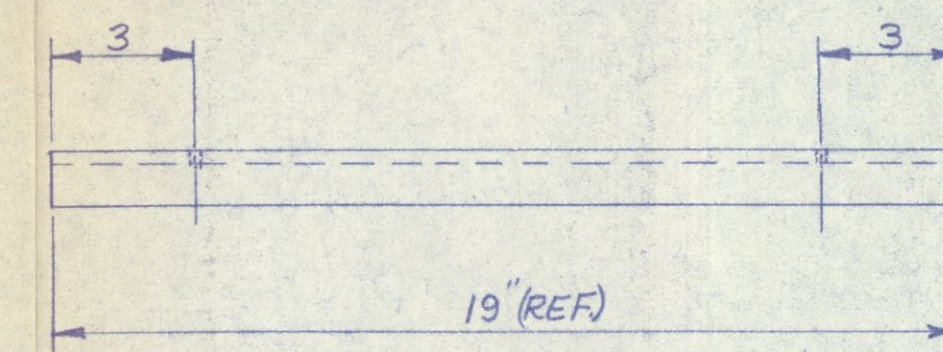
SCALE: 1/8" = 1'-0"

RECEIVED BLUEPRINT COPY 12-21-83

SECTION AA-AA






1/4 DIA. THRU. HOLE
— 2 REQ'D.



ITEM 2

NOTE

1. WELD AROUND ALL COUPLINGS & NIPPLES $\frac{3}{16}$ 
2. ALL COUPLINGS TO BE WELDED $\pm \frac{1}{32}$ PARALLEL TO SURFACE 90° FROM ATTACHED SURFACE IN TWO DIRECTIONS. NOT ALWAYS FLAT ON TANK WALL.
- (IF TANK WALL IS BOWED  

NOT THIS (INCORRECT) THIS (CORRECT)

RALLEL WITHIN $\pm \frac{1}{8}$

3. TANK WALLS TO BE PARALLEL WITH
4. ALL WELDS TO BE LEAK TIGHT

6	NIPPLE - 1" NPT SCH 40 - 3' LG.	STEEL		1
5	COUPLING - 1 1/4" NPT, 150 LB.	STEEL		1
4	COUPLING - 1 1/2" NPT, 150 LB.	STEEL		1
3	COUPLING, HALF 3/4" NPT, 150 LB.	STEEL		5
2	ANGLE STIFFENER, 12 x 12 x 1/4" PL 19 LG.	A36		1
1	TANK SHELL 12 GA.	HR 1020		1
ITEM	DESCRIPTION	MATERIAL	PART/PIECE NO.	REQ.

APPENDIX 35

CONFIDENTIAL

NOV 14 1983

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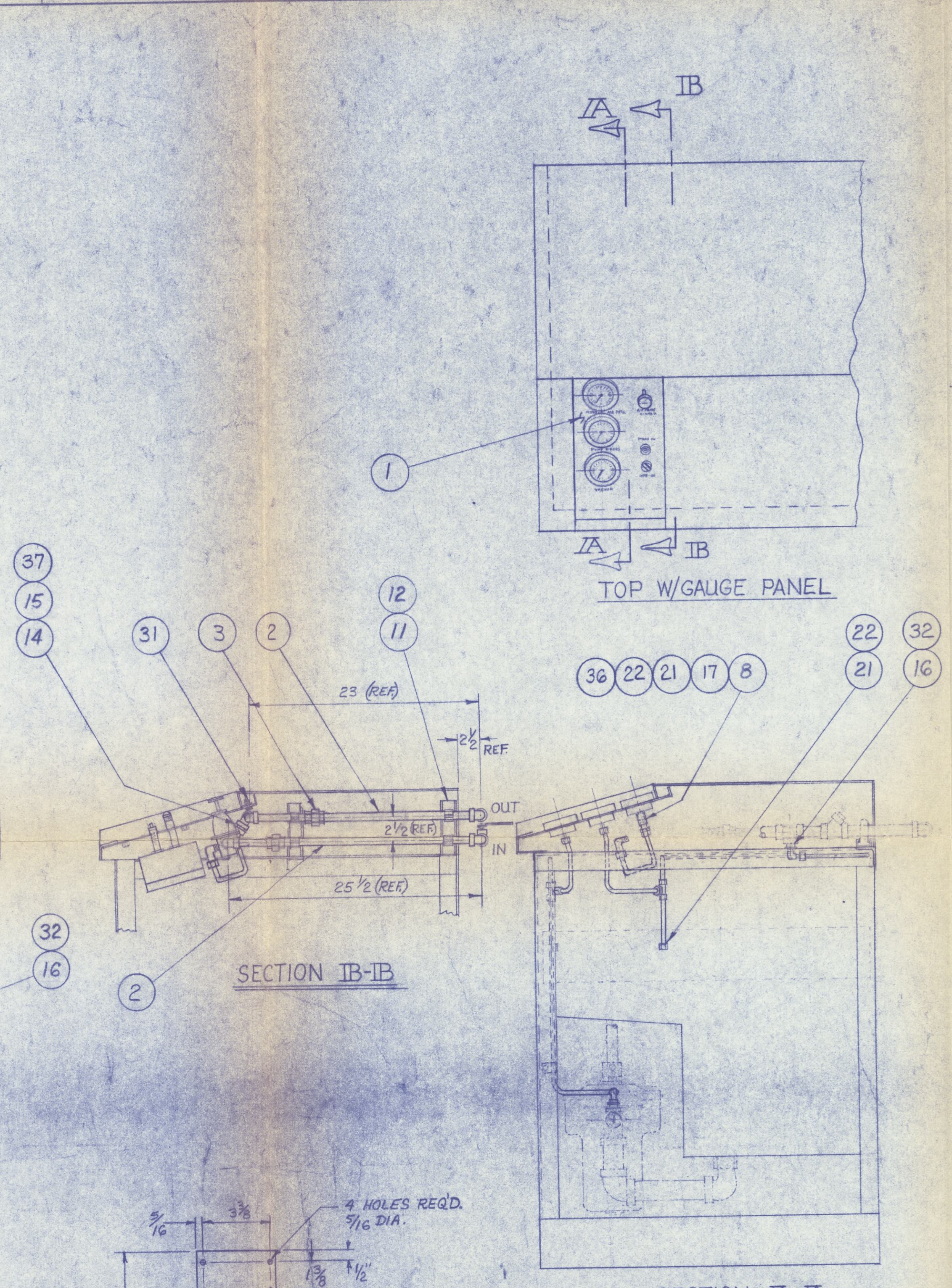
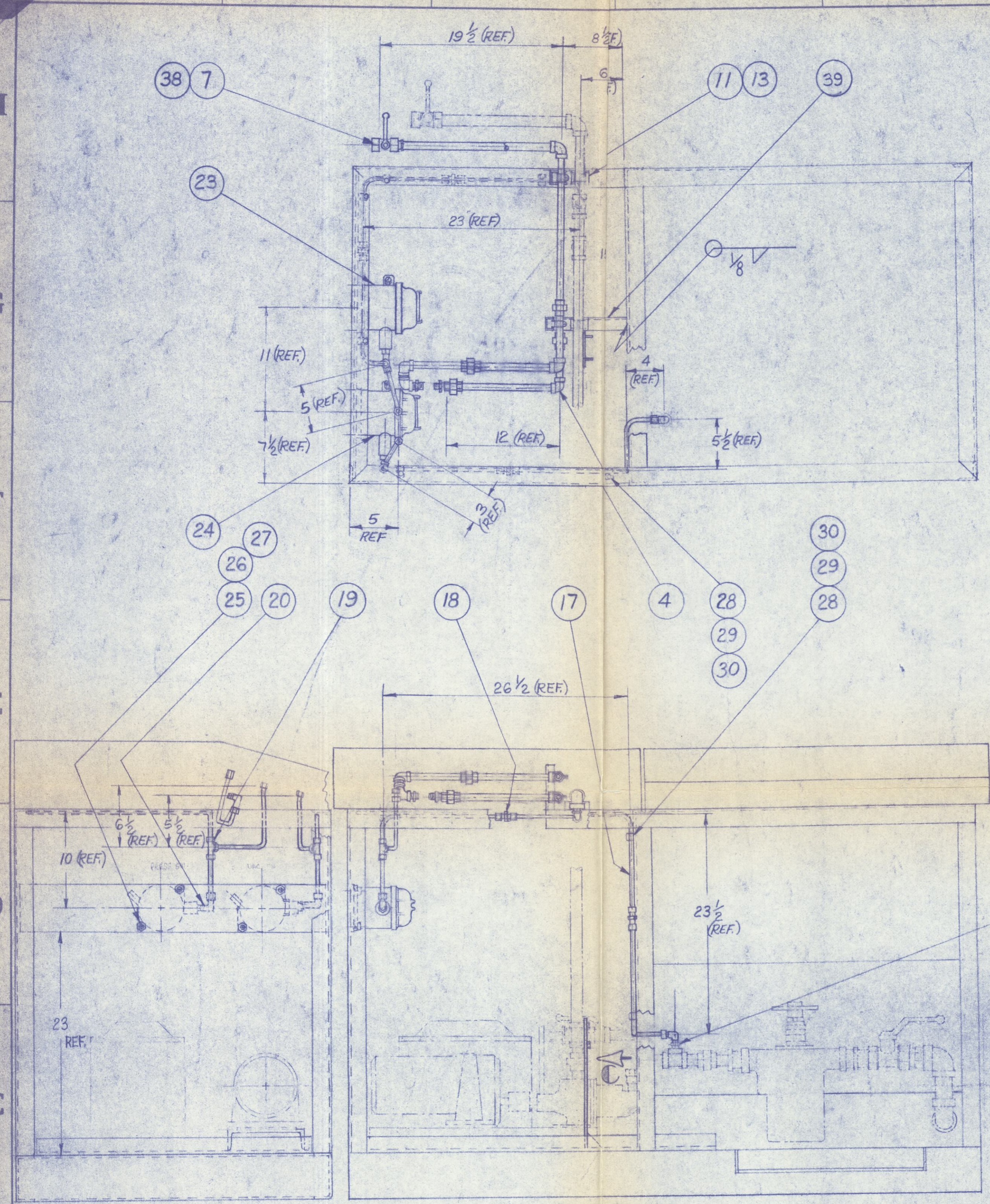
Confidentiality Withdrawn 4/19/84

KELLEY **KELLEY COMPANY INC.**
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53209

TANK-LIQUID WASTE

SUPERSEDES:		DERIVED FROM:	
DWG. BY: <i>John</i>	CK BY:	APP'D BY:	
SCALE: <i>1/2" = 1'</i>	DATE: <i>12/5/80</i>	DWG. NO. <i>260-1083</i>	REV. <i>3</i>

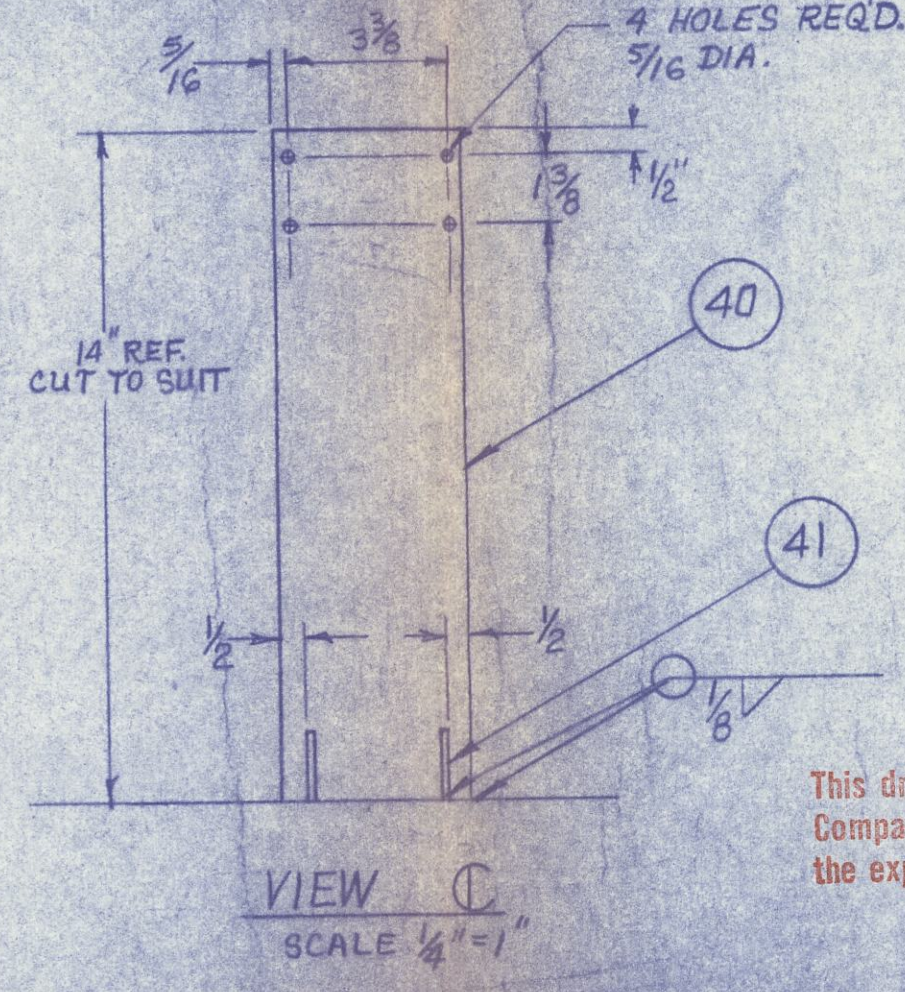
received BLUEPRINT COPY 3(2) SHEET 1 OF 1



- NOTES:
1. ALL TUBE BENDS TO BE APPROXIMATELY 1 1/4 RADIUS.
 2. DRILL 1/32 DIA. HOLES AS REQUIRED FOR TUBE CLAMPS.
 3. MOUNT TOP PANEL SECTION WITH GAUGE PANEL, AFTER ALL TUBING AND PIPING IS COMPLETE.

43					
42					
41	GUSSET		A	070-106	2 EA.
40	PLATE - 10 GA X 4 X 14"	LOW CARB.		249-162	1 EA.
39	ANGLE - 2 X 1 1/4 X 1/4 X 10" LG.	A 36		249-161	1 EA.
38	BUSHING - REDUCING 3/4 - 1/2		A	205-043	1 EA.
37	PIPE PLUG - 1/4 NPT.		A	205-001	1 EA.
36	ELBOW - MALE 3/8 - 1/4		A	206-211	1 EA.
35	BUSHING - REDUCER 1/2 - 3/8		A	205-087	2 EA.
34	NIPPLE - CLOSE 3/8		A	204-033	2 EA.
33	COUPLING - 3/8		A	206-431	2 EA.
32	ELBOW - MALE 90° 3/8 NPT - 3/8 TB.		A	206-066	2 EA.
31	HEX HD CAP SCR 5/16 - 18 - 1/2		-	000-804	7 EA.
30	WASHER - FLAT		-	000-214	8 EA.
29	HEX HD CAP SCR 5/16 - 18 - 3/4		-	000-799	8 EA.
28	TUBE CLAMPS - 3/8"		A	113-021	8 EA.
27	LOCKWASHER - 5/16		-	000-501	4 EA.
26	HEX NUT 5/16 - 18 U.N.C.		-	000-303	4 EA.
25	HEX HD CAP SCR 5/16 - 18 - 1 1/4		-	000-115	4 EA.
24	VACUUM SWITCH		A	149-177	1 EA.
23	PRESSURE SWITCH		A	149-176	1 EA.
22	SLEEVE		A	206-160	15 EA.
21	NUT		A	206-147	15 EA.
20	ELBOW - MALE 90° 1/4 NPT - 3/8 TB.		A	206-069	2 EA.
19	UNION TEE - 3/8 TUBE		A	206-443	2 EA.
18	UNION - 3/8 TUBE		A	206-001	4 EA.
17	COPPER TUBING 3/8 - 0.032 WALL		-	573-011	12 FT.
16	BUSHING - 3/4 - 3/8		A	205-121	2 EA.
15	ELBOW - STR. 90° 1/2"		A	205-009	1 EA.
14	NIPPLE - 1/2 NPT - CLOSE		A	204-080	1 EA.
13	UNISTRUT CLAMP 3/4 PIPE		A	113-047	2 EA.
12	UNISTRUT CLAMP 1/2" AIR		A	113-045	4 EA.
11	UNISTRUT		A	057-303	2 FT.
10					
9					
8	COUPLING - 1/4 NPT		A	205-038	1 EA.
7	BALL VALVE - 1/2"		A	150-145	1 EA.
6					
5					
4	ELBOW - 90° 1/2"	CARB STL.	A	205-013	5 EA.
3	UNION - 1/2"	CARB STL.	A	205-055	4 EA.
2	PIPE - 1/2" SCH 40	CARB STL.	-	552-001	8 FT.
1	GAUGE PANEL ASS'Y.		C	089-020	1

WISCONSIN
KJELL I. ERLANDSSON
E-14484
MILWAUKEE,
WIS.
PROFESSIONAL SEAL
8/21/89
APPENDIX 36



4/19/84
CONFIDENTIAL
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ALL DIMENSIONS IN INCHES.
DO NOT SCALE DWG. REMOVE ALL BURRS.
TOLERANCES
UNLESS OTHERWISE SPECIFIED

3 PLACE DECIMALS	± .010
2 PLACE DECIMALS	± .020
FRACTIONS	± 1/32
ANGLES	± 1°

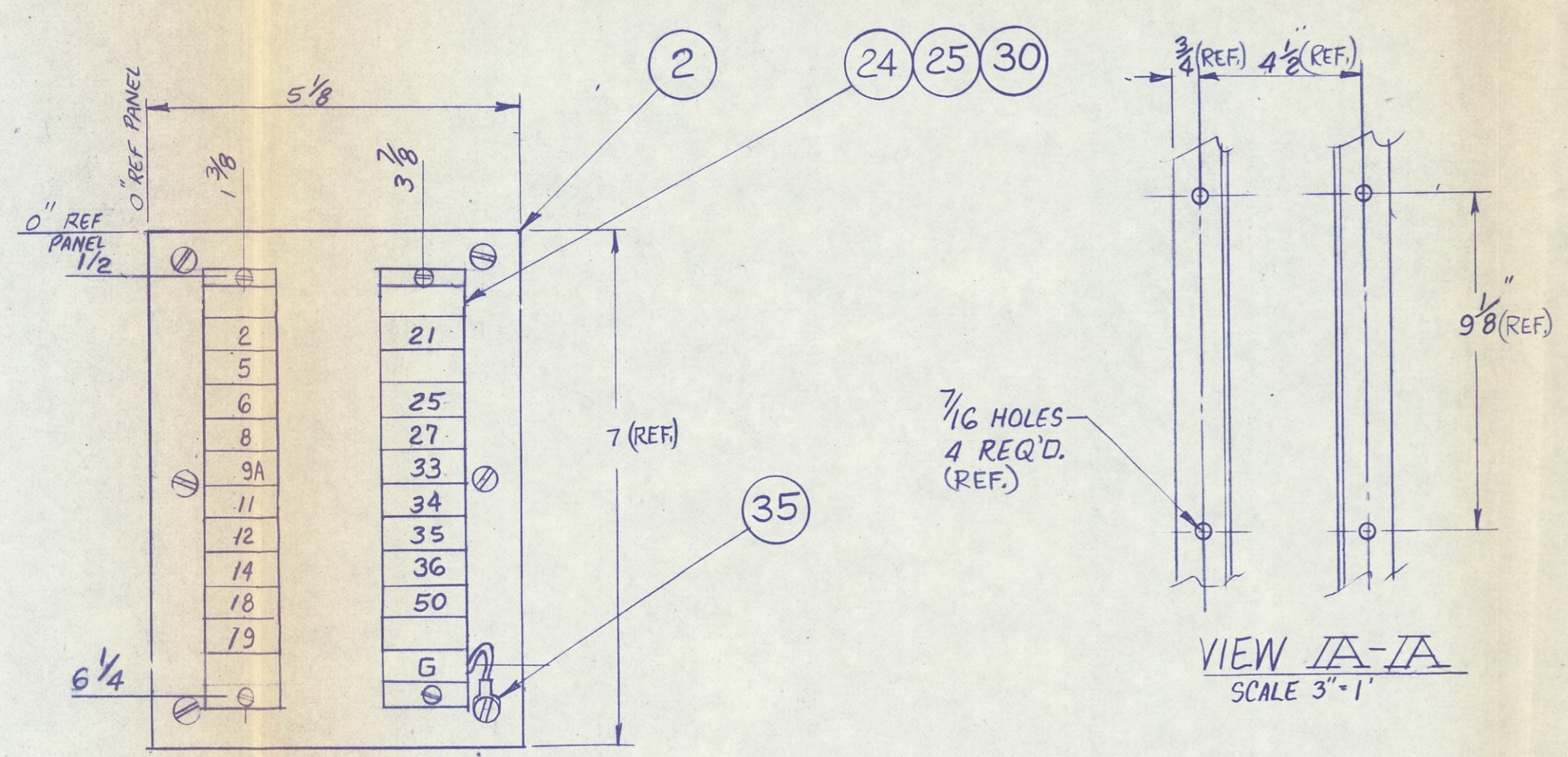
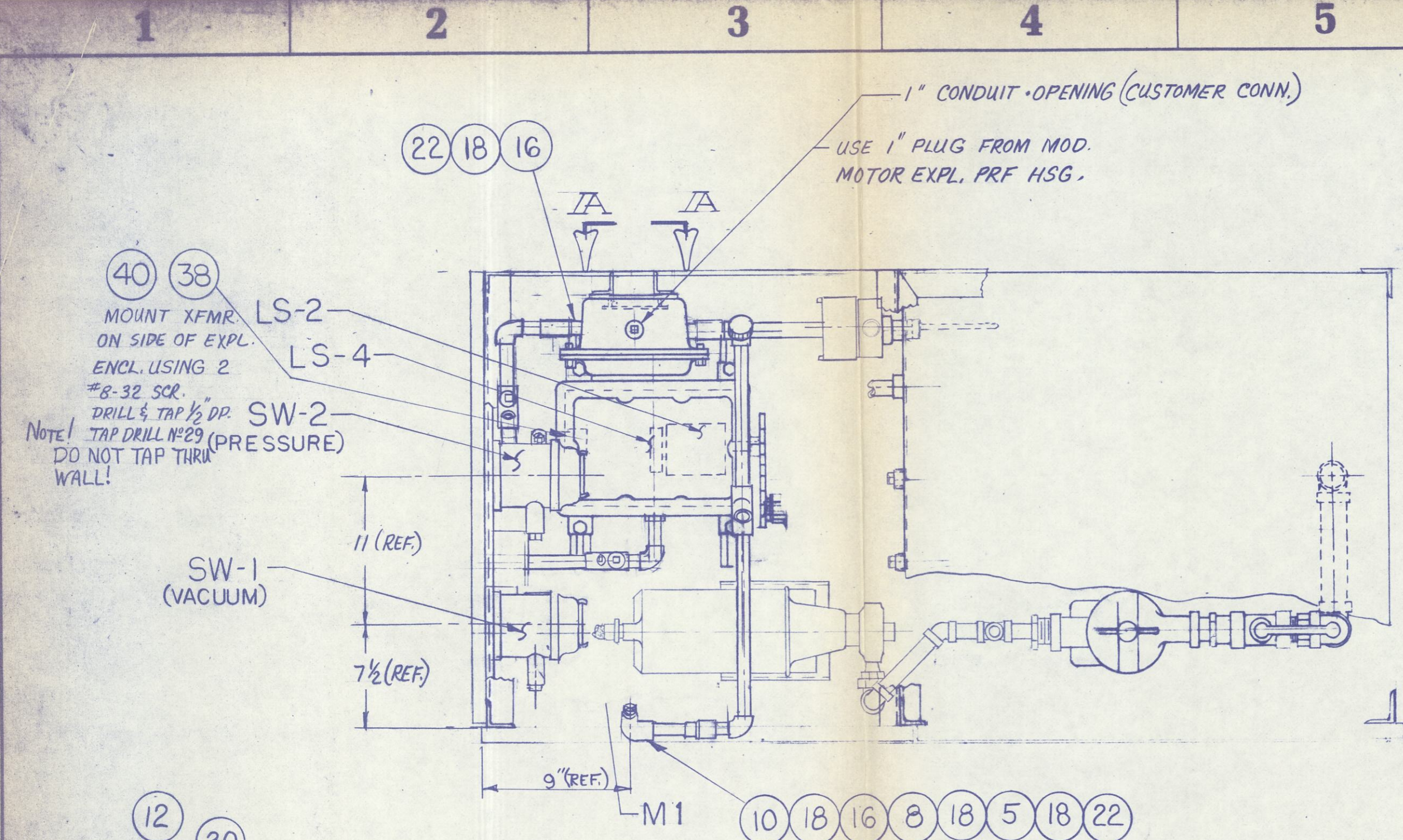
SYMBOLS:
A - ADDED LINES 38, 40, 41
B - QTY LINE 3 WAS 3
C - ITEM 7 WAS 150-013
D - DELETE LINE 3 (206-075)
E - DELETE LINES 6 (206-069)
F - LINE 21 WAS (204-187)
G - QTY OF LINE 21 WAS 13 UNITS
H - QTY OF LINE 21 WAS 13 UNITS
I - DELETE ITEM 10 (149-107)
J - DELETE ITEM 1 (205-077)
K - ADDED ITEM 23 THREE 37 UNITS

KELLEY COMPANY INC.
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53209

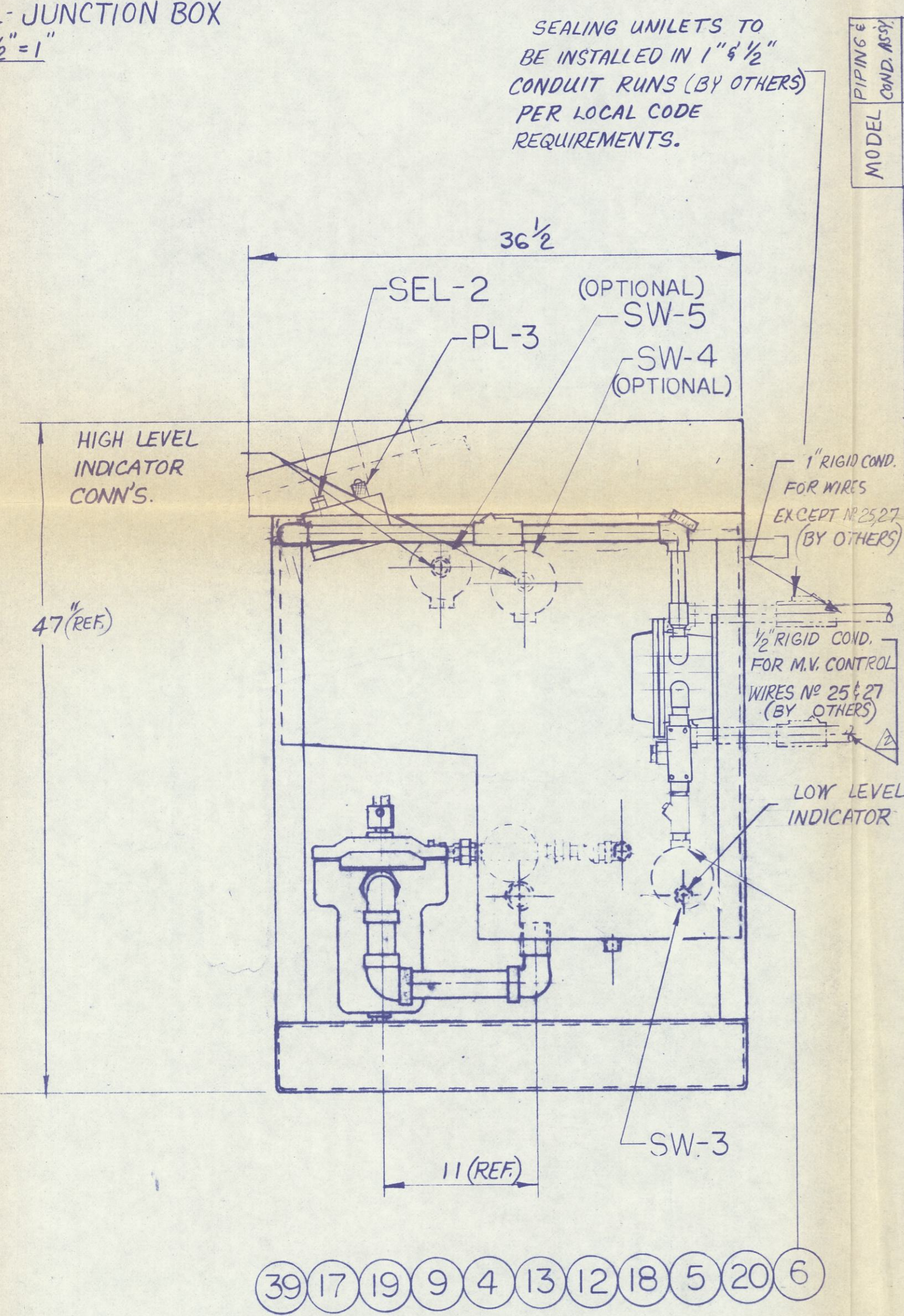
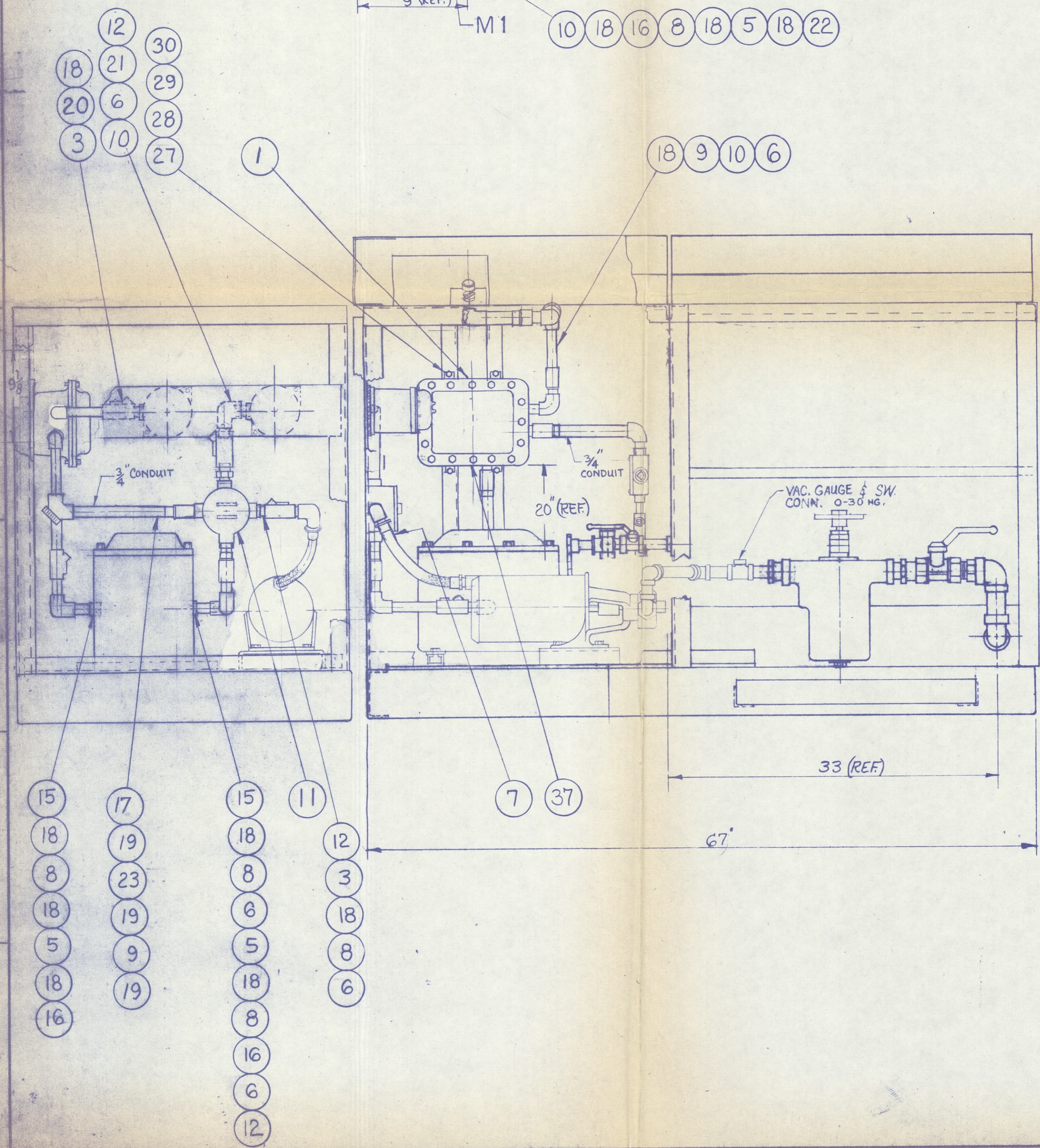
LIQUID WASTE FEEDER
GAUGE PIPING ASS'Y

SUPERSEDES: _____
DERIVED FROM: _____

DWG. NO. 8-21-80
SCALE 1/2" = 1'
DATE: 8-21-80
BY: _____
APP'D BY: _____
REV. 2
229-169



- NOTES
- FOR WIRING SCHEMATIC SEE DWG. 159-220 (P) SHTS 1 & 2
 - FOR PROPER APPLICATION OF SEALING COMPOUND AND FILLER IN UNILETS - SEE KELLEY SPEC. 263-026.



MODEL	380	780/1280	2500	260-130	260-131	260-132
QTY.	QTY.	QTY.	QTY.	QTY.	QTY.	QTY.
DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION	DESCRIPTION
2	2	2	SCREW #8-32 x 1/2 LG.			000-116
1	1	1	PLUG - 3/4"			205-066
1	1	1	TRANSFORMER - 24 V.			A 260-134
1	1	1	PLUG - 1/2"			205-014
10	10	10	WIRE SPLICER			145-128
1	1	1	GROUNDING LUG			026-384
4	4	4	TYRAP BLOCK			145-192
4	4	4	WIRE TIES			145-191
40	40	40	WIRE #14 AWG BLACK			151-067
20	20	20	WIRE #14 AWG WHITE			151-068
4	4	4	SCREW #8-32 x 1/2			000-116
4	4	4	LOCK WASHER - 3/8			000-052
4	4	4	HEX NUT 3/8-16 UN.C.			000-031
4	4	4	HEX HD. CP. SCR. 3/8-16-1 1/4			000-003
40	40	40	FORK TERMINALS			145-155
2	2	2	END SECTION			148-007
24	24	24	CONTACT SECTION			148-006
1	1	1	ELBOW - PULLING - 3/4			260-092
2	2	2	ELBOW - PULLING - 1/2			260-091
2	2	2	UNION - 1/2" M-F EXPL. PRF			260-086
1	1	1	SEALING COMPD. & FILLER - APPLETON			262-032
10	10	10	CONDUIT - RIGID 3/4"			260-085
10	10	10	CONDUIT - RIGID - 1/2"			260-084
3	3	3	EXPANSION UNION 1/4 M-F			260-083
4	4	4	EXPANSION UNION 1/2 M-F			260-082
2	2	2	REDUCER BUSHING 1 1/2 - 1"			260-081
1	1	1	UNILET - JUNCT. ERTB TO 1/2"			260-080
1	1	1	UNILET - JUNCT. ERTB TO 3/4"			260-079
6	6	6	REDUCER BSHG. 1/4 - 1/2 EXPL. PRF			205-149
1	1	1	UNILET - GR x 75 - A 3/4"			260-078
2	2	2	ELBOW - EXPL. PRF 1/2 90° M-F			260-077
2	2	2	ELBOW - EXPL. PRF 3/4" - F			260-076
5	5	5	ELBOW - EXPL. PRF 1/2" 90° F-F			260-075
1	1	1	FLEX COUPLING - EXPL. PRF			A 260-074
7	7	7	CONDUIT NIPPLE - 1/2"			A 204-067
5	5	5	SEALING UNILET - 1/2" ERTB			A 260-073
5	5	5	SEALING UNILET - 3/4"			A 204-066
3	3	3	SEALING UNILET - 1/2" ERTB			A 260-072
1	1	1	PANEL BOARD			A 089-021
1	1	1	JUNCTION BOX - EXPL. PROOF			C 260-093

CONFIDENTIAL DEC 15 1983

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APPENDIX 37 PART A

SYMBOL ZONE WAS

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COPIES

1 OF 2

KELLEY COMPANY INC.
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53208

LIQUID WASTE FEEDER
PIPING & CONDUIT ASS'Y

SIMILAR TO: 229-168

DATE: 12/19/80

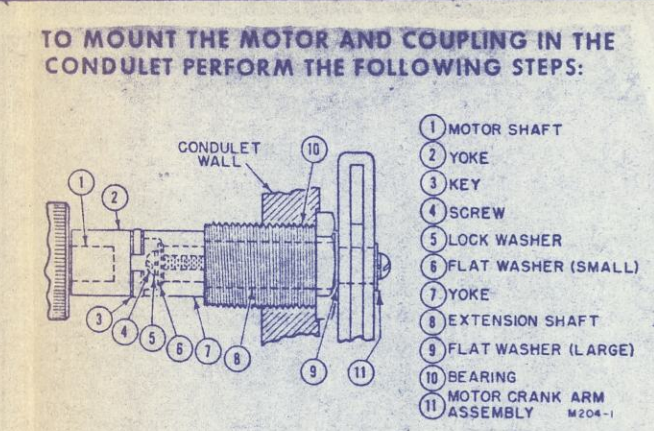
SCALE: 1/2" = 1'

THRU 260-132

ITEM 26 TO BE TACK WELDED TO LIQUID WASTE FRAME AFTER PROPER ALIGNMENT OF CHAIN DRIVE ASS'Y AND METERING VALVE.

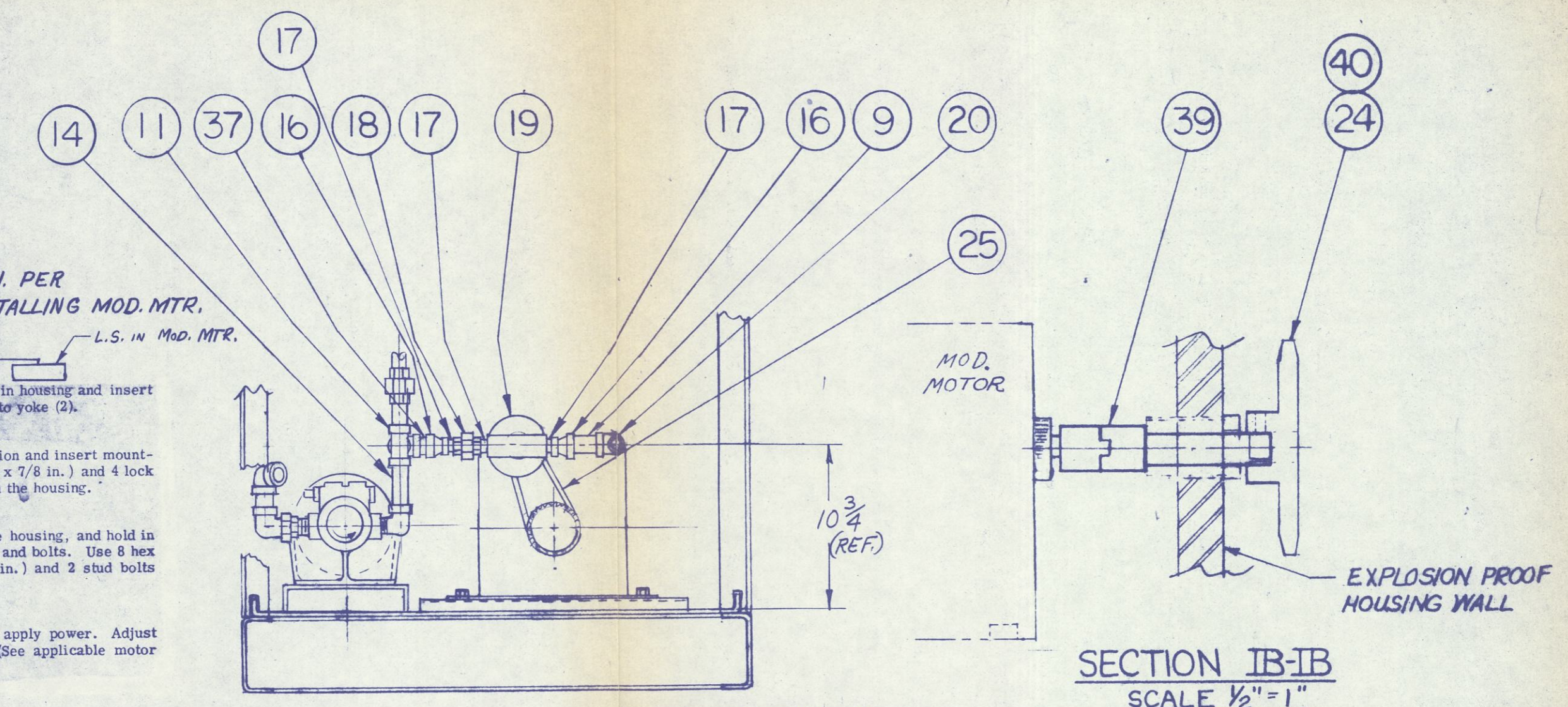
NOTE: FINISH LIQUID PIPING COMPLETELY BEFORE TACK WELDING MOTOR PUMP BASE TO FRAME.

STEP 1—Connect extension shaft (8) to yoke (7). Yokes (2) and (7) are identical. Tighten screw (4) through lock washer (5) and washer (6).
NOTE: LUBRICATE SHAFT THOROUGHLY WITH NEVER SEIZE, BEFORE INSERTING INTO BEARING.
STEP 2—Insert the extension shaft in bearing (10) until yoke butts against the bearing.
STEP 3—Place washer (9) over external portion of the shaft. Place crank arm on extension shaft and fasten with screw provided.
CAUTION: Too tight a connection will bind the shaft and cause an unnecessary load on the motor. If the crank arm will not turn easily remove washer (9).
STEP 4—If the crank arm is not too tight place key (8) on yoke (7), and then add yoke (2).



4A. ADJUST AUX LIMIT SW. PER DETAIL BEFORE INSTALLING MOD. MTR. IN HOUSING.

STEP 5—Place Modutrol motor in housing and insert square end of the motor shaft into yoke (2).
STEP 6—Hold the motor in position and insert mounting screws. Use 4 screws (1/4 x 7/8 in.) and 4 lock washers (1/4 in.) furnished with the housing.
STEP 7—Place the cover on the housing, and hold in place. Insert mounting screws and bolts. Use 8 hex head steel screws (5/8 x 1 1/2 in.) and 2 stud bolts furnished with conduit.
STEP 8—Install the linkage and apply power. Adjust the linkage for proper travel (See applicable motor and linkage instruction sheets).



SECTION IB-IB
SCALE 1/2"=1"

SECTION A-A

ITEM	QTY.	QTY.	QTY.	DESCRIPTION	MATERIAL	PART/PIECE NO.	ITEM
1	1	1	1	ELBOW-45° 3/4"		A 205-109	43
2	2	2	2	PUMP & MOTOR ASS'Y, 2500		A 260-159	42
3	3	3	3	PUMP & MOTOR ASS'Y, 780/1280		A 260-141	41
4	4	4	4	SET SCR. 1/4-20		- 000-257	40
5	5	5	5	COUPLING-EXPL. PR. HSG.		A 234-062	39
6	6	6	6	ELBOW-90° 3/4"		A 205-040	38
7	7	7	7	NIPPLE-CLOSE 3/4"		A 204-034	37
8	8	8	8	PIPE 3/4" SCH. 40		553-001	36
9	9	9	9	BUSHING-2 1/2-1 1/2"		A 205-170	35
10	10	10	10	PIPE NIPPLE-1 1/2-3 1/2"		A 204-084	34
11	11	11	11	PIPE NIPPLE-3/4-6" LG.		A 204-035	33
12	12	12	12	PIPE CAP-3/4"		A 205-042	32
13	13	13	13	MODULATING MOTOR		A 168-033	31
14	14	14	14	HEX HD CR SCR. 1/2-13 x 3/4		000-001	30
15	15	15	15	LEVEL CONTROL		A 260-146	29
16	16	16	16	HOUSING-EXPLOSION-PROOF		A 114-155	28
17	17	17	17	UNISTRUT-SPRING NUT-1/2-13 UNC		A 260-087	27
18	18	18	18	UNISTRUT-1 1/2 x 1/8 x 1/8 FT. LG. (EN)		A 057-303	26
19	19	19	19	CHAIN-LG. 3/8 x 25 P. LG		A 260-090	25
20	20	20	20	SPROCKET-28 TOOTH		A 260-105	24
21	21	21	21	SPROCKET-30 TOOTH		A 260-106	23
22	22	22	22	CHECK-VALVE 3/4"		A 150-149	22
23	23	23	23	VALVE-3/4" BALL		A 150-145	21
24	24	24	24	ELBOW-90° STR-3/4"		A 205-056	20
25	25	25	25	VALVE-METERING-1/2"		A 150-148	19
26	26	26	26	UNION-1/2"		A 205-055	18
27	27	27	27	NIPPLE-CLOSE 1/2"		A 204-003	17
28	28	28	28	REDUCER-3/4-1/2"		A 205-127	16
29	29	29	29	PIPE NIPPLE-3/4" SCH 40-3"		A 204-074	15
30	30	30	30	PIPE NIPPLE-3/4" SCH 40-4"		A 204-075	14
31	31	31	31	PUMP & MOTOR ASS'Y, 2500		A 260-135	13
32	32	32	32	ELBOW-UNION 3/4" M		A 205-159	12
33	33	33	33	TEE-3/4"		A 205-039	11
34	34	34	34	UNION-3/4"		A 205-041	10
35	35	35	35	PIPE NIPPLE-3/4" SCH 40-2"		A 204-083	9
36	36	36	36	BUSHING-2 1/2-3/4"		A 205-169	8
37	37	37	37	STRAINER-W/BASKET		A 228-012	7
38	38	38	38	NIPPLE-CLOSE 1 1/2"		A 204-085	6
39	39	39	39	VALVE-1 1/2" BALL		A 150-146	5
40	40	40	40	ELBOW-UNION-1 1/2" M&F		A 205-168	4
41	41	41	41	ELBOW-90° 1 1/2"		A 205-078	3
42	42	42	42	PIPE NIPPLE-1 1/2"-8 LG.		A 204-077	2
43	43	43	43	ELBOW-90° STR-1 1/2"		A 205-167	1

NOV 14 1983
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QTY.	QTY.	QTY.	DESCRIPTION	MATERIAL	PART/PIECE NO.	ITEM
1	1	1	RESISTOR BOARD		243-002	47
1	1	1	PIPE CAP-1" NPT		205-008	46
2	2	2	PIPE PLUG-3/4"		205-066	45
1	1	1	PIPE PLUG-1 1/4"		205-158	44

4 D-10 ITEM 29 WAS 149-178 E1294 2/1/82

5 F-12 ADD PART NO 260-159-ITEM 42 E1124 5/19/81

6 A-6 ADD RESISTOR BOARD 243-002 E1097 4/1/81

7 D-10 ADD MOD. MTR. 168-033 E1097 4/1/81

8 D-10 DELETE SWITCH ASS'Y (149-181) E1099 6/1/81

9 ADD ITEM 41 (1) 260-141 E0954 2-7-81

0 0 ORIG. RELEASE E0892 1/1/81

APPENDIX 37
PART B

ISSUED SHOWN ARE THE PROPERTY OF THE KELLY CO. INC. AND ALL RIGHTS OF USE OR REPRODUCTION ARE RESERVED.

SCALE: 1/2"=1"

DATE: 12/17/80

THRU 260-130

REV. 4

KELLEY COMPANY INC.
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53208

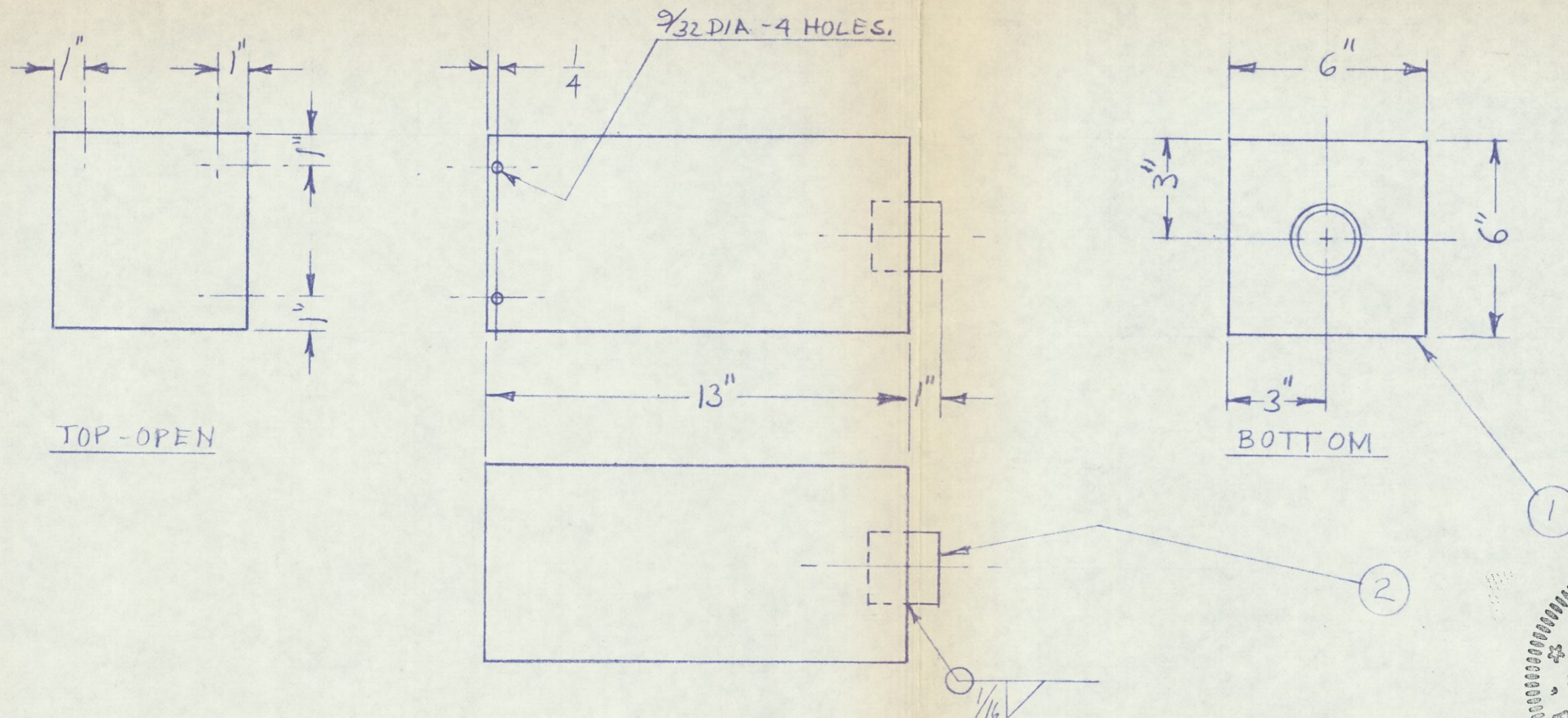
**LIQUID WASTE FEEDER
PIPING & CONDUIT ASS'Y
(FOR GEAR PUMP)**

SIMILAR TO 229-168

RECEIVED BLUEPRINT COPY

12-21-83

2

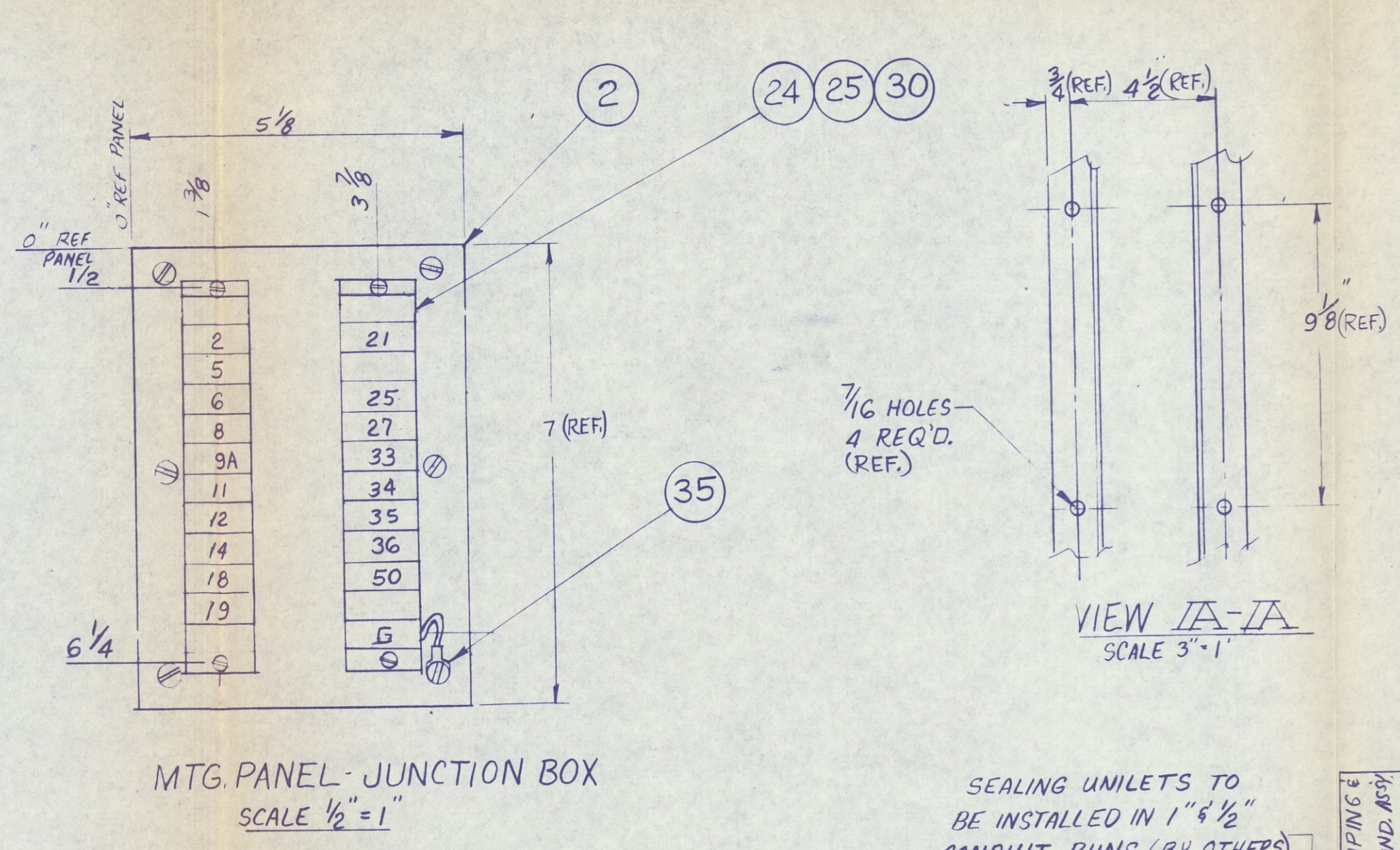
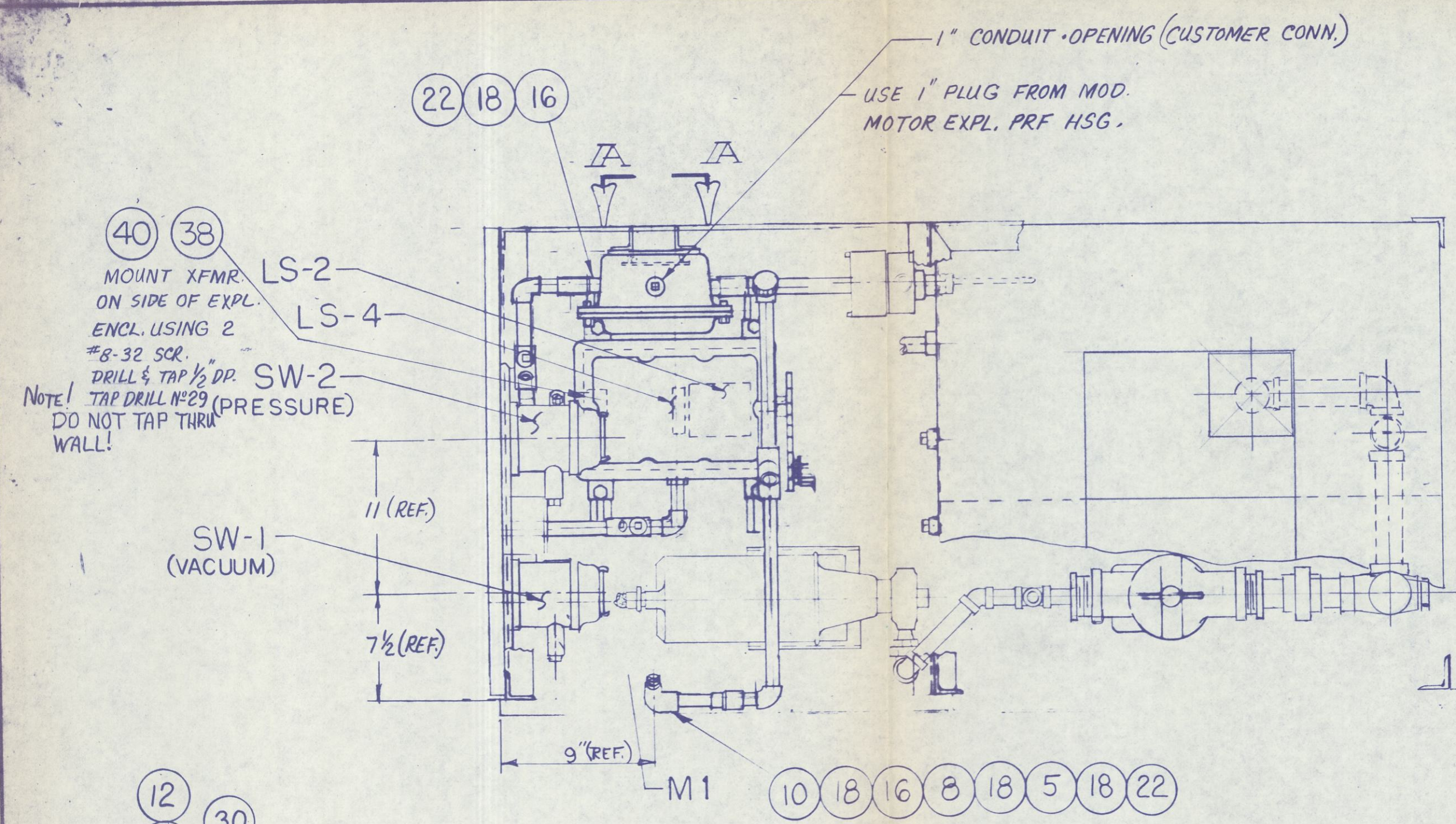


NOTE:

1. ALL WELD SEAMS TO BE LEAK TIGHT.
2. PAINT FLAT BLACK EPOXY POWDER COAT PER WRIGHT METAL PROCESSORS, 1700 W. CORNELL MIL, WI. 263-1144

ALL DIMENSIONS IN INCHES. DO NOT SCALE DWG. REMOVE ALL BURRS.							
TOLERANCES UNLESS OTHERWISE SPECIFIED							
3 PLACE DECIMALS ± .010							
2 PLACE DECIMALS ± .020							
FRACTIONS ± 1/32							
ANGLES ± 1°							
2	COUPLING	1 1/2 NPT					
1	CONTAINER	14 GA.					
ITEM	DESCRIPTION		MATERIAL	PART/PIECE NO.	REQ.		
	USED ON MODELS:						
KELLEY COMPANY INC. 6720 N. TEUTONIA AVENUE MILWAUKEE, WISCONSIN 53209			STARTER TANK				
SUPERSEDES:			DERIVED FROM:				
DWG. BY: <i>LEN</i>	CK BY:	APP'D BY:					
SCALE: 1/4	DATE: 5-24-84	DWG. NO. 260-226	REV. 1				
(M) 1	ORIGINAL RELEASE	6-8-84 DC					
SYM	ZONE	WAS	ECO	DATE	BY		





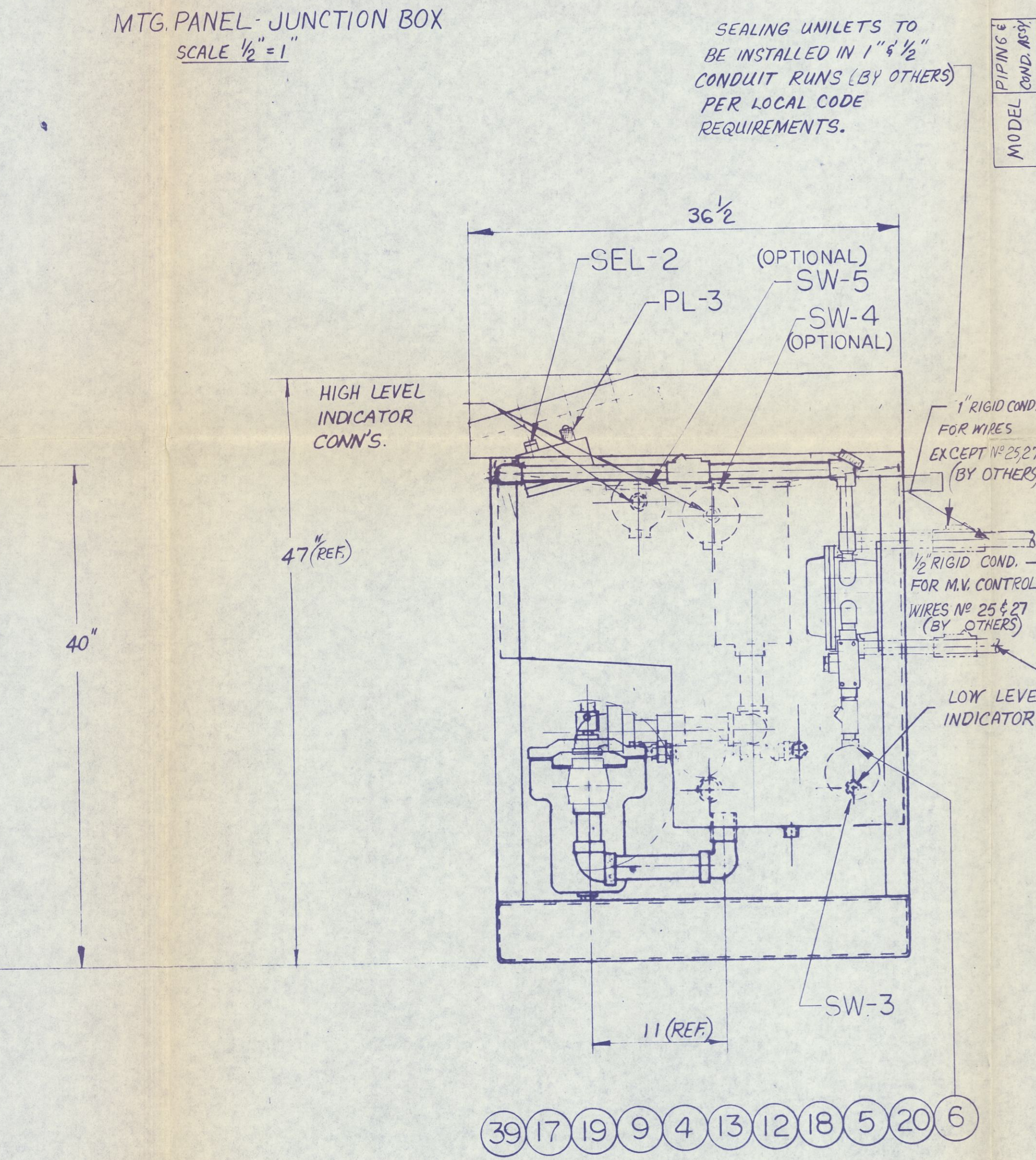
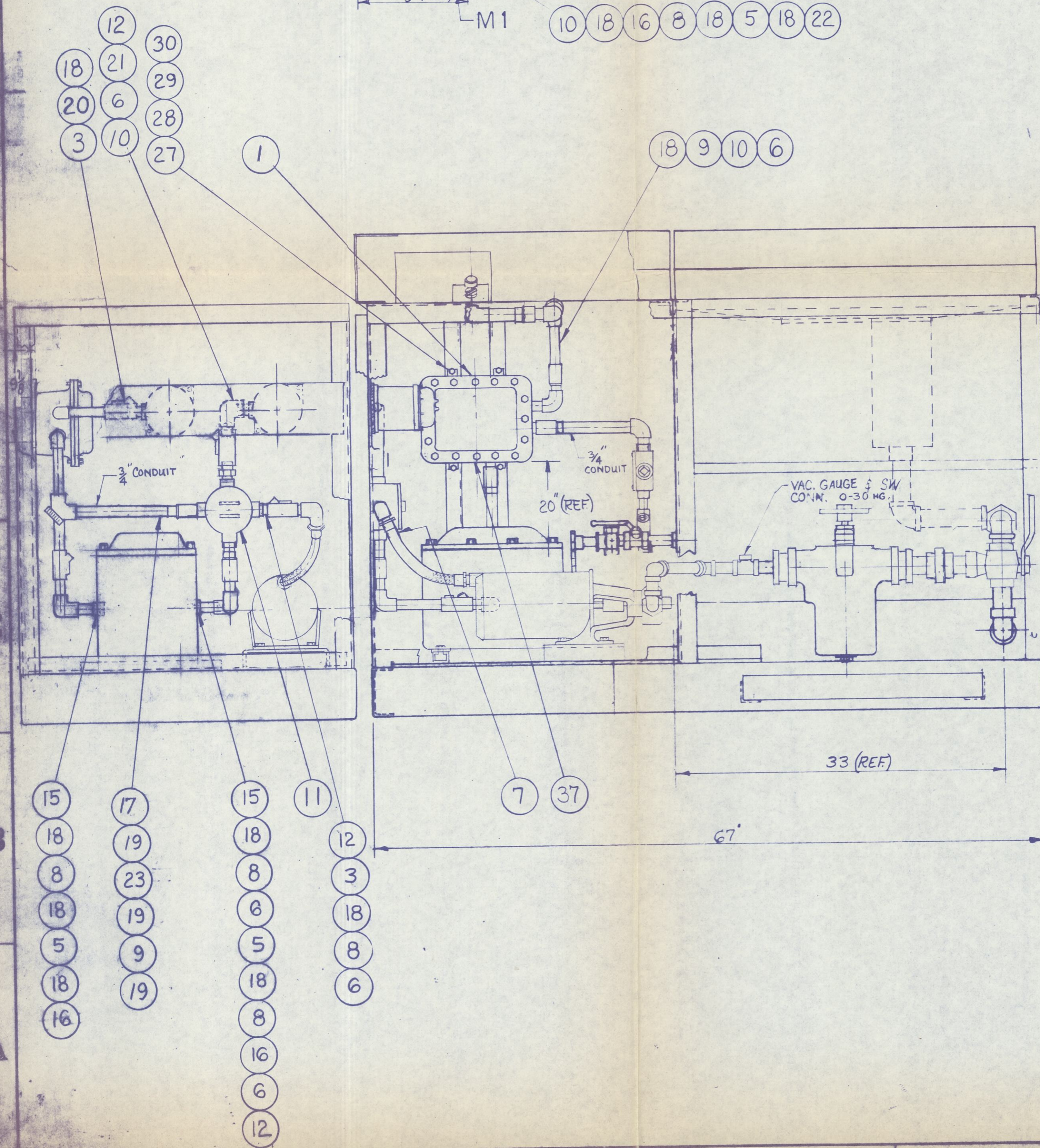
NOTES

1. FOR WIRING SCHEMATIC SEE DWG. 159-220 (P) SHTS 1 & 2
2. FOR PROPER APPLICATION OF SEALING COMPOUND AND FILLER IN UNILETS - SEE KELLEY SPEC. 263-026.

SEP 5 1984

CONFIDENTIAL

This drawing is the proprietary property of the Kelley Company, Inc. and cannot be used or reproduced without the express consent of Kelley Company, Inc.



QTY.	QTY.	QTY.	DESCRIPTION	MATERIAL	PART/PIECE NO.	ITEM
2	2	2	SCREW #8-32 x 1/2 LG.		000-116	40
1	1	1	PLUG - 3/4"		205-066	39
1	1	1	TRANSFORMER - 24 V.		A 260-134	38
1	1	1	PLUG - 1/2"		205-014	37
10	10	10	WIRE SPLICER		145-128	36
1	1	1	GROUNDING LUG		026-384	35
4	4	4	TYRAB BLOCK		145-192	34
4	4	4	WIRE TIES		145-191	33
40 FT.	40 FT.	40 FT.	WIRE #14 AWG BLACK		151-067	32
20 FT.	20 FT.	20 FT.	WIRE #14 AWG WHITE		151-068	31
4	4	4	SCREW #8-32 x 1/2		000-116	30
4	4	4	LOCK WASHER - 3/8"		000-052	29
4	4	4	HEX NUT 3/8-16 UN.C.		000-031	28
4	4	4	HEX HD. CP.SR. 3/8-16 1/4		000-003	27
40	40	40	FORK TERMINALS		145-155	26
2	2	2	END SECTION		148-007	25
24	24	24	CONTACT SECTION		148-006	24
1	1	1	ELBOW - PULLING - 3/4"		260-092	23
2	2	2	ELBOW - PULLING - 1/2"		260-091	22
2	2	2	UNION - 1/2" M-F EXPL PRF		260-086	21
1	1	1	SEALING COMPD. & FILLER - APPLETON		262-032	20
10 FT.	10 FT.	10 FT.	CONDUIT - RIGID 3/4"		260-085	19
10 FT.	10 FT.	10 FT.	CONDUIT - RIGID - 1/2"		260-084	18
3	3	3	EXPANSION UNION 3/4" M-F		260-083	17
4	4	4	EXPANSION UNION 1/2" M-F		260-082	16
2	2	2	REDUCER BUSHING 1 1/2" 1/2"		260-081	15
1	1	1	UNILET - JUNCT. ERTB TO 1/2"		260-080	14
1	1	1	UNILET - JUNCT. EXT 75 3/4"		260-079	13
6	6	6	REDUCER BSHG. 3/4-1/2 EXPL PRF		205-149	12
1	1	1	UNILET - GR x 75 - A 3/4"		260-078	11
2	2	2	ELBOW - EXPL. PRF. 1/2 90° M-F		260-077	10
2	2	2	ELBOW - EXPL. PRF 3/4" - F		260-076	9
5	5	5	ELBOW - EXPL. PRF 1/2" 90° F-F		260-075	8
1	1	1	FLEX COUPLING - EXPL. PRF		A 260-074	7
7	7	7	CONDUIT NIPPLE - 1/2"		A 204-067	6
5	5	5	SEALING UNILET - 1/2" EYE 50A		A 260-073	5
5	5	5	CONDUIT NIPPLE 3/4"		A 204-066	4
3	3	3	SEALING UNILET - 1/2" EYE 50		A 260-072	3
1	1	1	PANEL BOARD		A 089-021	2
1	1	1	JUNCTION BOX - EXPL. PROOF		A 260-098	1

USED ON MODELS
Class 1
Division 1

SYMBOL

ORIGINAL RELEASE

DATE

BY

KELLEY COMPANY INC.
6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53209

LIQUID WASTE FEEDER
PIPING & CONDUIT ASS'Y

SIMILAR TO: 209-180 WGT. 11.5 LBS

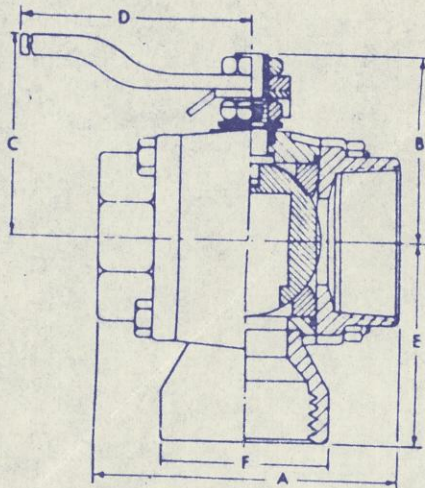
DWG. DMC
SCALE: 1/8" = 1"

DATE: 5-24-89

260-232

1 OF 2

ITEM	DESCRIPTION	MATERIAL	PART/PIECE NO	REQ
------	-------------	----------	---------------	-----



INCHES

Valve	A	B	C	D	E	F	Side Port	Bottom Port
1 1/2"	4.53	2.88	3.12	7.00	3.56	2.25	1.25	1.12

VALVE PART NO
T416TSEV2

MFG.

WORCESTER CONTROLS
125 HARTWELL ST.
WEST BOYLSTON MA 01581
617/835-6041

REP.

CLIMATIC CONTROL
MILW WIS
4259-9070



9/5/84

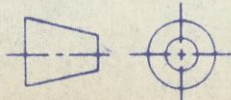
(M)	1	ORIGINAL RELEASE			
SYM	ZONE	WAS	ECO	DATE	BY

ALL DIMENSIONS IN INCHES.
DO NOT SCALE DWG.
REMOVE ALL BURRS.

TOLERANCES

UNLESS OTHERWISE SPECIFIED

3 PLACE DECIMALS	± .010
2 PLACE DECIMALS	± .020
FRACTIONS	± 1/32
ANGLES	± 1°



IDEAS SHOWN ARE THE PROPERTY OF
THE KELLEY CO INC AND ALL RIGHTS
OF USE OR REPRODUCTION ARE
RESERVED



KELLEY COMPANY INC.

6720 N. TEUTONIA AVENUE
MILWAUKEE, WISCONSIN 53209

VALVE - MANUAL

3-WAY 1 1/2 NPT

SUPERSEDES:

DERIVED FROM:

DWG. BY: CEN

CK BY:

APP'D BY:

SCALE:

DATE:

DWG. NO.

REV.

5-24-84

261-272

1

CONTROL RELAY
10 AMP

7	8	9	COM.
A	B		COIL
1	2	3	N.C.
4	5	6	N.O.

115 V - 1 ϕ - 60 HZ FROM FUSED DISCONNECT

#14 BLACK

(ON ENCLOSURE PANEL)
SEL-1
OFF ON

L 2

N^o 14 - WHITE

F-1
15 A

CR4-1
39

CR1-1
(3) (5)

G
5

PL-4
ON ENCL.
ASS'Y

115 V - 1 ϕ - 60 HZ - 1/2 H.P.

M1

SOL-1
2
ATOMIZING AIR SOL.

PL-3 (ON MAIN UNIT)
G

TR-2
INSTANTANEOUS CONT.
(CLOSED DURING
TIMING & AFTER
TIMED OUT)

LS-3
(1) (2)

40

(1) CR4 (2)

25 AMP

SOL-2
INJECTOR PURGE SOL.

SOL-3
25 AMP

SOL-4
AIR CYLINDER - EXTEND

SOL-4
AIR CYLINDER - RETRACT

IMPORTANT!
(SET @ 1.5 MIN.)
10 MIN. - OFF DELAY
TR2

(6) (7)

(6) (5)

(ON MAIN UNIT CONSOLE)
SEL-2
OFF ON

TC-3
SET @ 2300°F
(INNER DIAL)

SW-6
AIR PRESSURE SW.
SET @ 50 PSI.
(TO BREAK AT
50 PSI. OR LESS)
(SHOWN ABOVE PRESS)

CHARGE DR.
(SHOWN NOT
DOWN)

LS-1

JUMPER FOR TEST ONLY

TURN ADJ. SCR.
COUNTERCLOCKWISE
TO DECREASE VAC
ACTUATION POINT
1-30 HG. (SET @ 24)

TURN ADJ. SCR.
CLOCKWISE TO
LOWER ACTUATION
POINT.
6-150 PSI (SET @ 60)

LOC. D-9

LOW
LEVEL SW.
SW-3

LRB (LAST)
LR-1

LRB (LAST)
LR-2

TR-1
(SET @ 1 MIN.)
10 MIN.
ON DELAY
TRI

CR2A

17 (7) (1)

43

ON
1 MIN. DELAY - (LOW FIRE START)

(1) TR1 (2)

2

CR2-1

(4) (7)

19

TR2 (2)

25 AMP

CR1 (2)

20

LS-4

(3) (4)

20

CR1 (2)

20

LS-4

(3) (4)

20

CR1 (2)

20

LS-4

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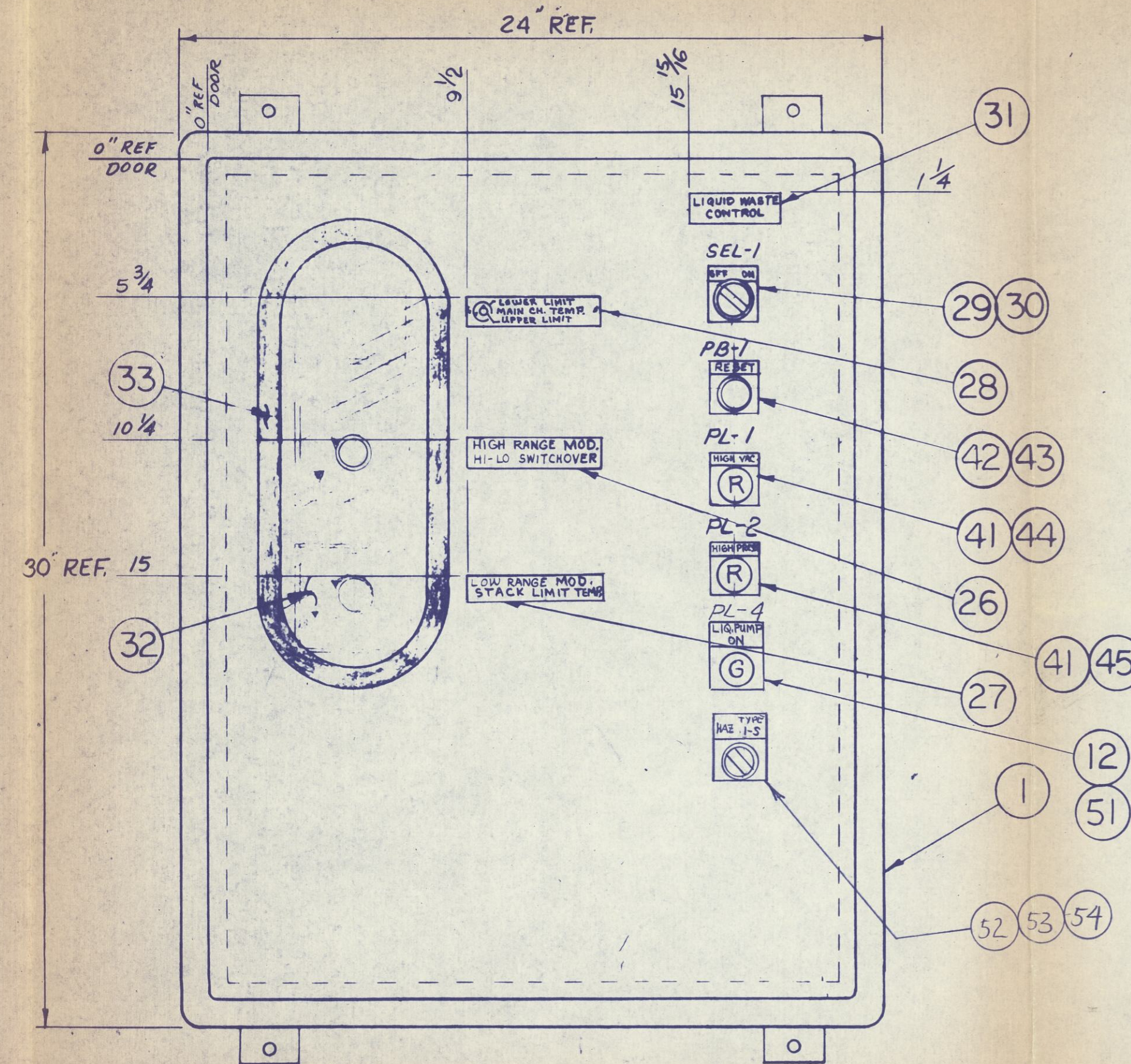
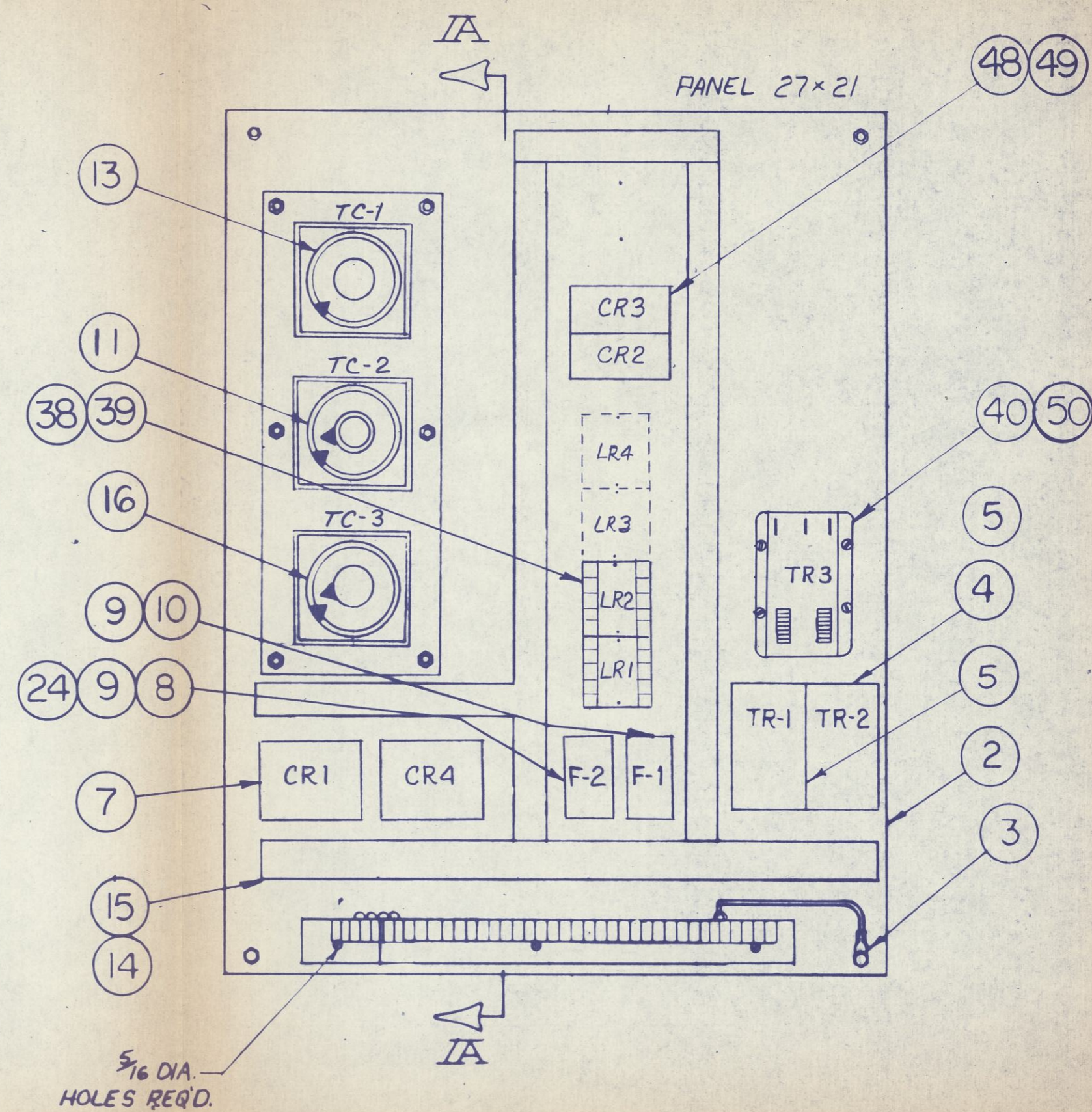
LS-4

(3) (4)

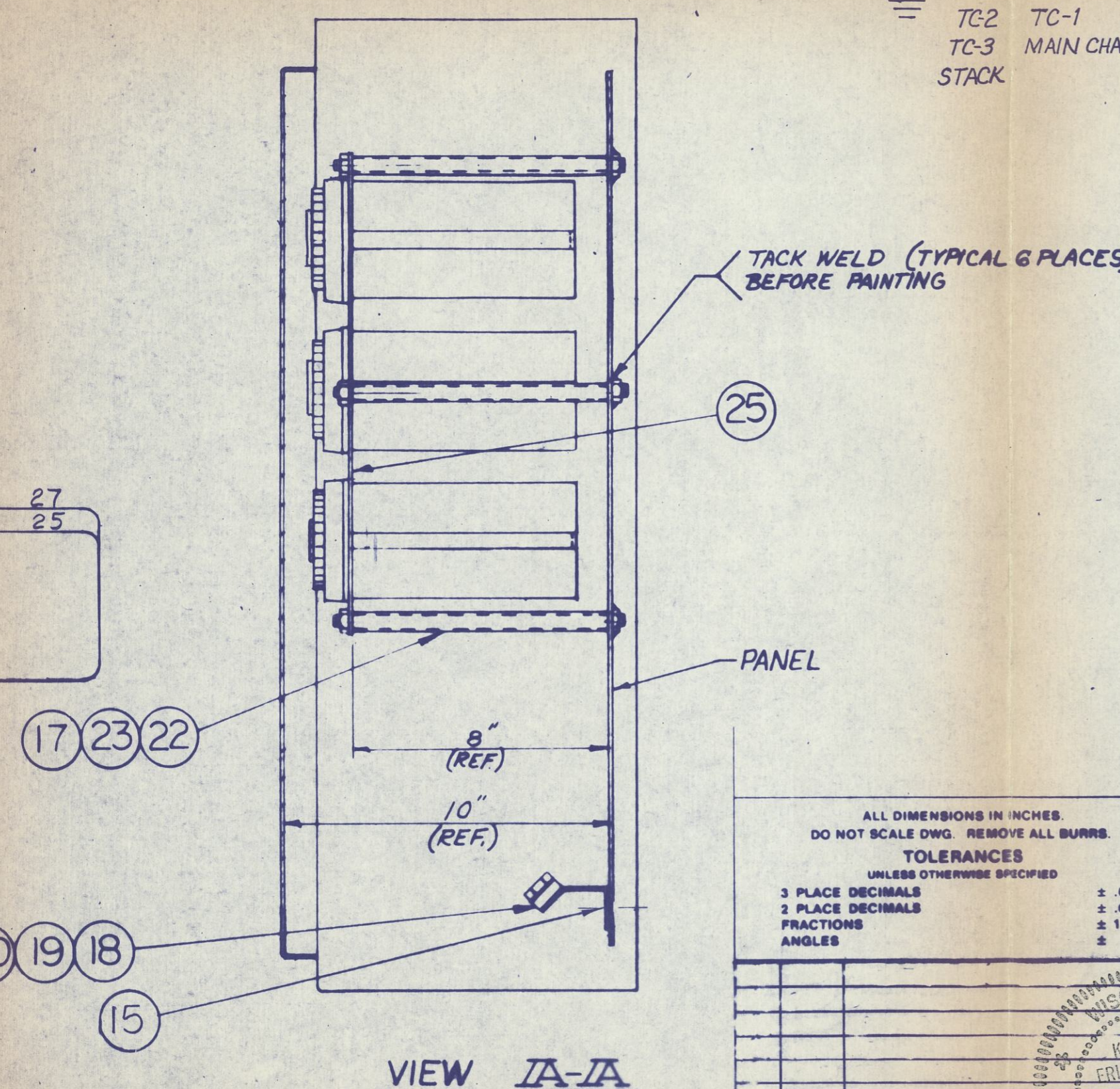
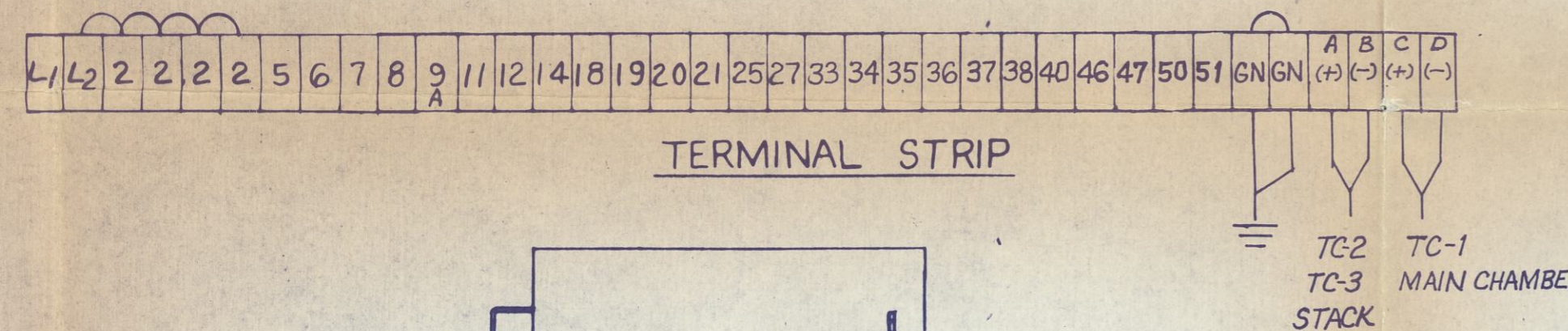
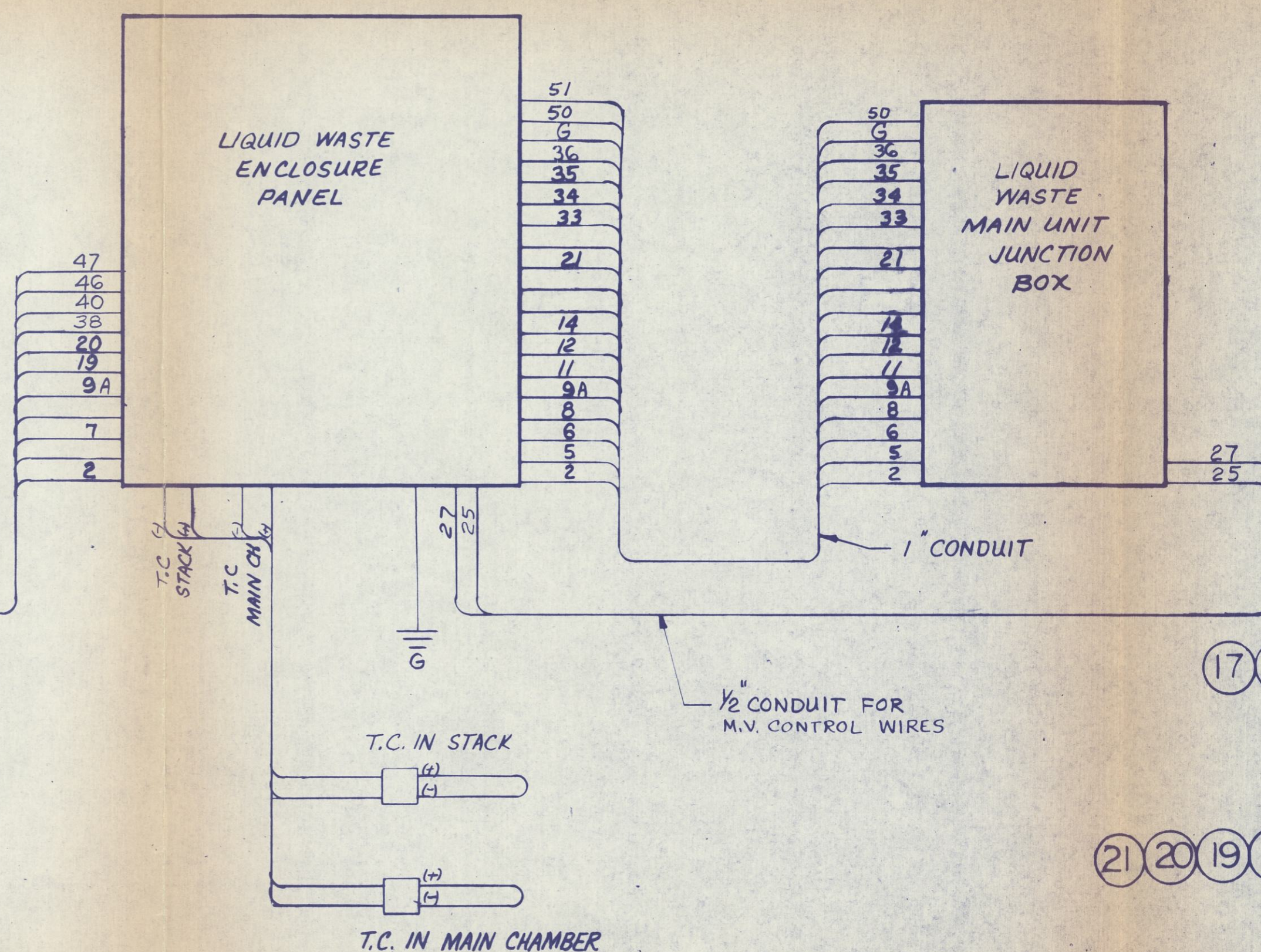
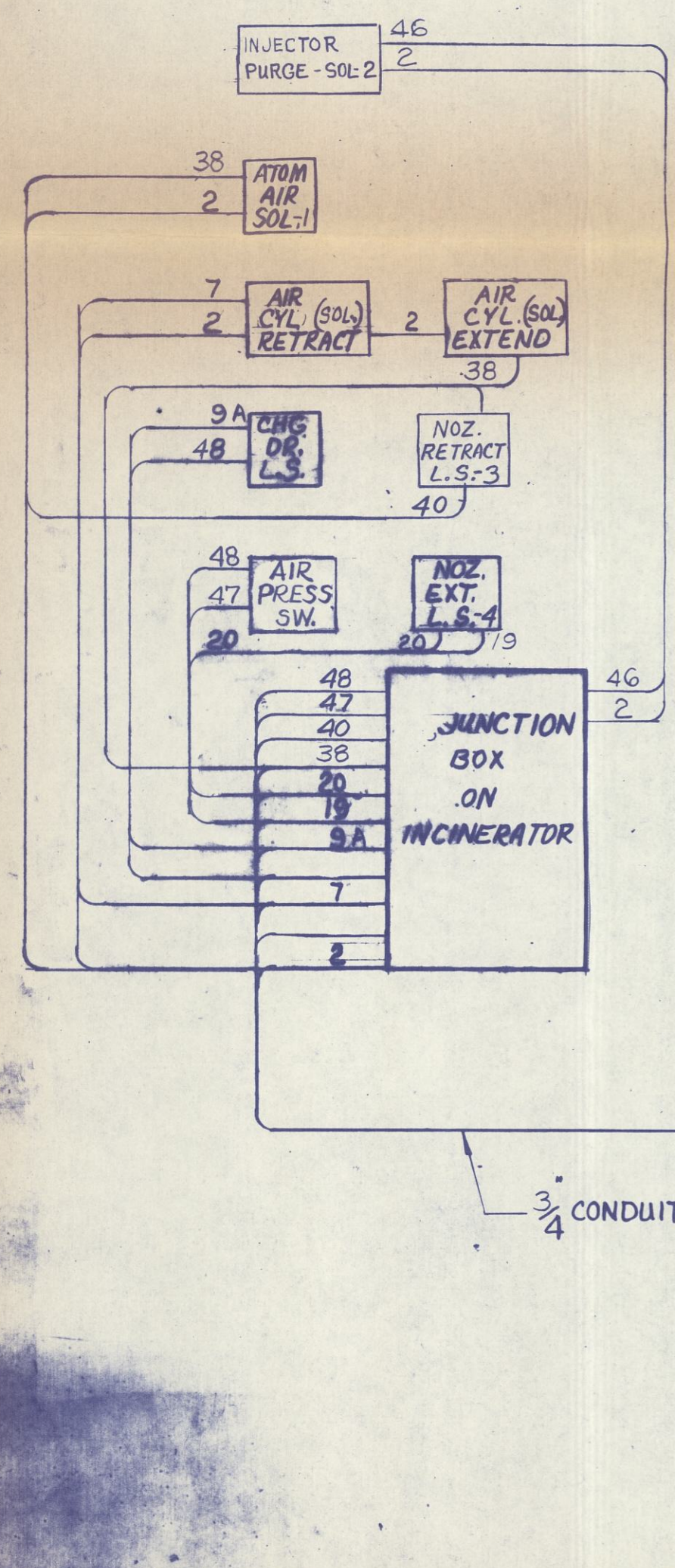
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CR1 (2)

20



NOTE!
1. IDENTIFY DEVICES ON INSIDE PANEL AND ON INSIDE OF DOOR WITH ENGRAVING TAPE.



INTERCONNECT DIAGRAM - LIQUID WASTE

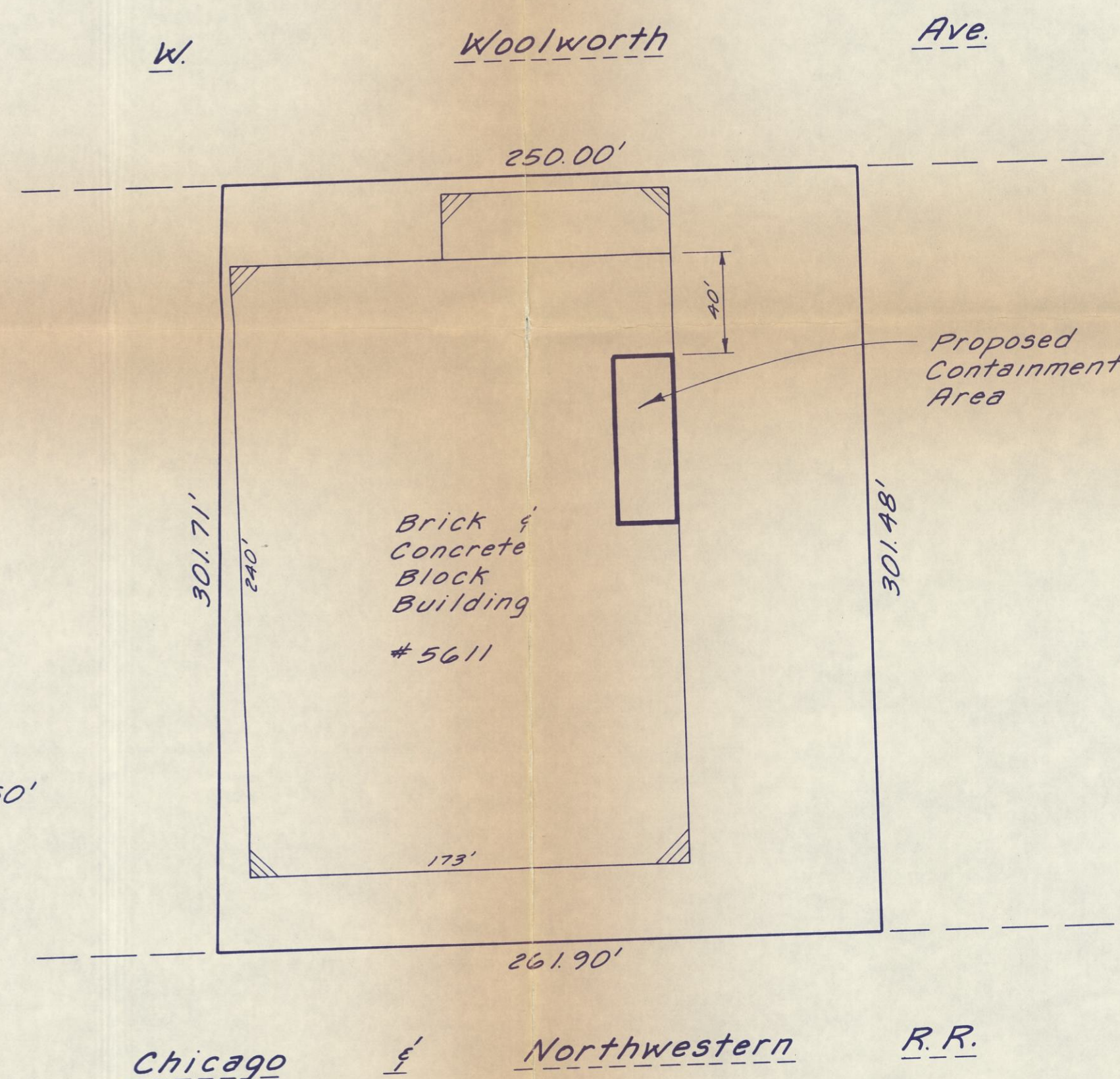
ITEM	DESCRIPTION	MATERIAL	QTY
54	CONTACT BLOCK 1N.D. 1N.C.	A 149-081	1
53	LEGEND PLATE (HAZ - TYPE) MS	A 138-742	1
52	SELECTOR SWITCH OPER.	A 149-070	1
51	LEGEND PLATE (LIQ. PUMP ON)	A 138-739	1
50	TERMINAL - SNRP ON	A 145-166	3
49	RELAY - SOCKET	A 901-838	2
48	RELAY, CONT'L	A 901-837	2
47	GREEN WIRE - 14 GA.	A 151-073	25 FT.
46	FORK TERMINALS	A 145-155	75
45	LEGEND PLATE (HIGH PRESS)	A 138-571	1
44	LEGEND PLATE (HIGH VAC)	A 138-735	1
43	LEGEND PLATE (Reset)	A 138-647	1
42	PUSH BUTTON	A 149-105	1
41	PILOT LIGHT - RED	A 199-001	2
40	TIMER - REPEAT	B 260-157	1
39	RELAY, BASE	A 900-552	2
38	RELAY, LATCHING - 10 A.	A 158-020	2
37	TIE RAP BLOCKS	A 145-192	25
36	WIRE TIES	A 145-191	25
35	WIRE - 14 GA. WHITE	MXW. - 151-068	50 FT.
34	WIRE - 14 GA. BLACK	MTW. - 151-067	150 FT.
33	WEATHERSTRIPPING	A 200-091	3 1/2 FT.
32	WINDOW	A 164-013	1
31	LEGEND PLATE (LIQ. WASTE)	B 138-659	1
30	SPIRAL WRAP	A 145-279	5 FT.
29	SELECTOR SW. W/ BASED PLATE	A 149-026	1
28	LEGEND PLATE (LOW LIMIT)	B 138-760	1
27	LEGEND PLATE (STACK LIMIT TEMP)	B 138-759	1
26	LEGEND PLATE (HIGH RANGE MOD. HIGH-LOW SW. OVER)	A 138-758	1
25	MOUNTING PLATE (BRKT.)	B 077-248	1
24	SCREW (MTG) 8-32 x 1 LG.	FUSE BLK. - 000-342	4
23	PIPE 1/4 SCH 40 x 8"	- 574-003	6
22	THREADED ROD 1/4-20 x 8 1/4 LG.	- 000-465	6
21	JUMPER	A 148-009	5
20	END SECTION	A 148-007	1
19	CONTACT SECTION	A 148-006	37
18	TERMINAL BLOCK SUPPT. - 21 LG.	B 077-298	1 EA.
17	NUT 1/4-20 UNC	- 000-301	14
16	TEMP CONTROLLER AV961	TC-3 B 271-170	1
15	SCREW (MTG) 8-32 x 1/2 LG.	- 000-116	50
14	PANQUIT W/COVER	TC-1 A 161-017	6 FT.
13	TEMP CONTROLLER-DIALAPAK	AV921 A 158-060	1
12	PILOT LIGHT - GREEN	AV921 A 199-003	1
11	TEMP. CONTROLLER-DIALAPAK - AUX RELAY	B 158-074	1
10	FUSE - 15 A	TC-2 A 208-023	1
9	FUSE BLOCK	A 207-005	2
8	FUSE - 10 A	A 208-016	1
7	RELAY - 25 A.	A 158-024	2
6			
5	TIMER - 10 MIN. ON DELAY	A 158-006	1
4	TIMER - 10 MIN. OFF DELAY	A 158-013	1
3	GROUNDING LUG	A 026-384	1
2	PANEL W/HOLES	C 089-018	1
1	ENCLOSURE 30x24x10 - MINN 12	C 153-070	1

ALL DIMENSIONS IN INCHES.
DO NOT SCALE DWG. REMOVE ALL BURRS.
TOLERANCES
UNLESS OTHERWISE SPECIFIED
3 PLACE DECIMALS ± .010
2 PLACE DECIMALS ± .020
FRACTIONS ± 1/32
ANGLES ± 1°

USED ON MODEL: COMMERCE INDUSTRIAL
MAY 29 1984
ENCLOSURE ASSEMBLY LIQUID WASTE CONTROLS-II
KELLEY COMPANY
7220 N. TUSTIN
MILWAUKEE, WIS.
271-332
SHEET 2 OF 2

HAZARDOUS WASTE CONTAINMENT PLAN COMMERCE INDUSTRIAL CHEMICALS INC.

5611 W. WOOLWORTH AVE.
MILWAUKEE, WISC. 53218

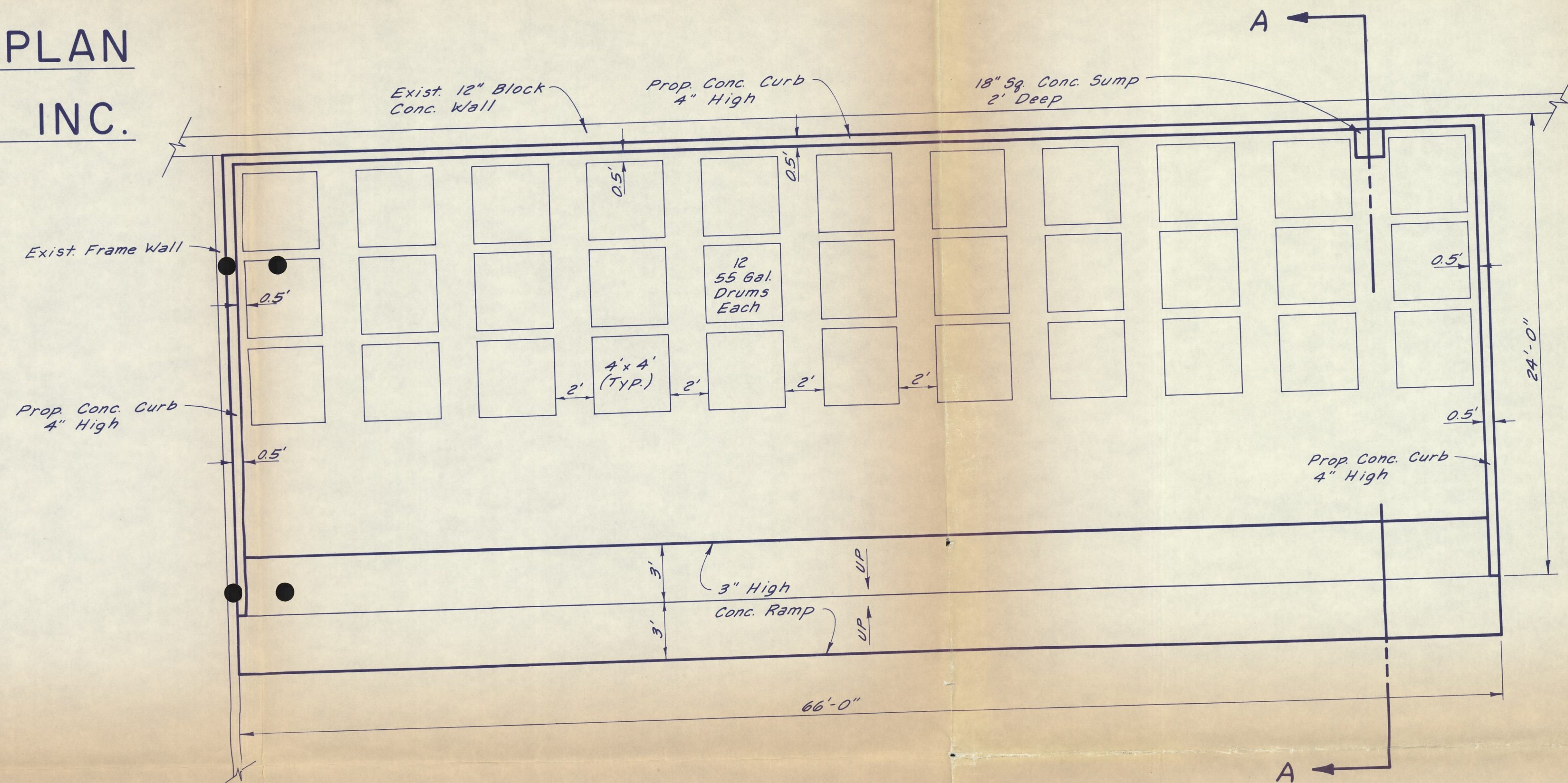


LOCATION MAP

DESIGN DATA

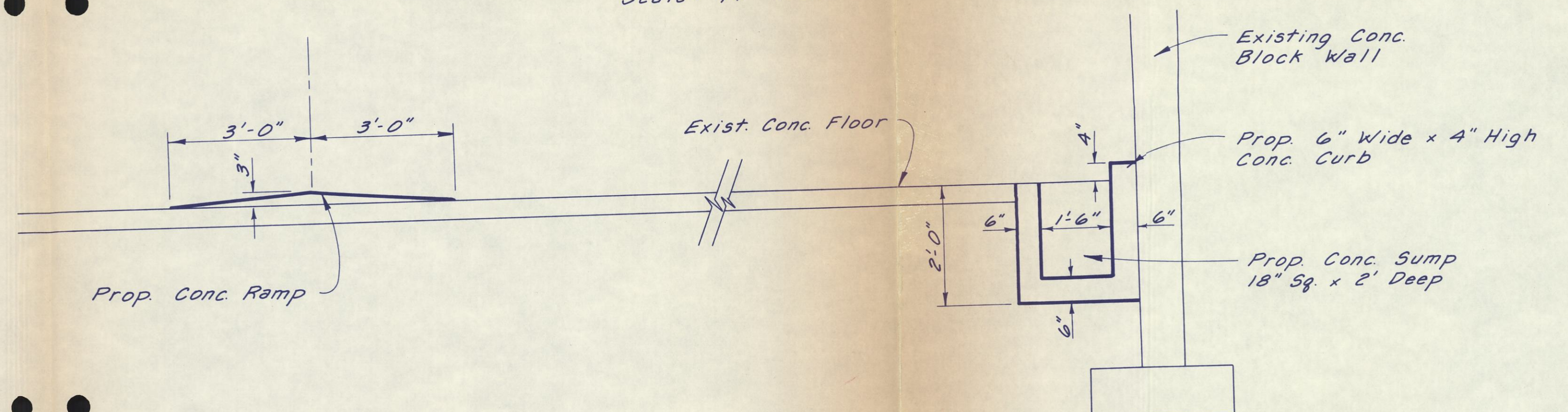
Containment Volume Req'd =
10% of Storage Volume
10% of 396 - 55 Gal. Drums = 2,178 Gal.

Containment Volume Proposed:
Area = 65.0 x 22.0 = 1,430.0 S.F.
Volume = 1,430.0 x 0.25 = 357.5 C.F.
= 2,681 Gal.



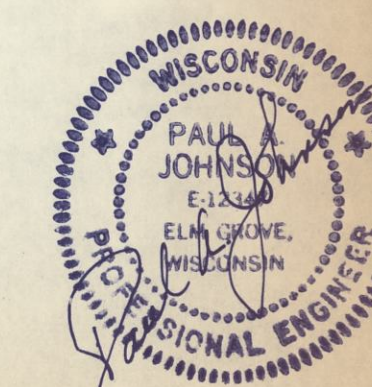
PLAN

Scale: 1/4" = 1'-0"



SECTION A-A

Scale: 1/2" = 1'-0"



R. A. Smith & Assoc. Inc. MUNICIPAL-INDUSTRIAL-SANITARY-CIVIL ENGINEERS SURVEYORS 17400 W. NORTH AVENUE BROOKFIELD, WISC. 53005 PH. (414) 786-1777		
CITY OF MILWAUKEE COMMERCE INDUSTRIAL CHEMICALS INC.		
HAZARDOUS WASTE CONTAINMENT PLAN		
SCALE: AS SHOWN	JOB NO: 10482	DATE: 9-27-82
DESIGNED BY: P.A.J.	DRAWN BY: T.J.T.	CHECKED BY: P.A.J.
REVISED: 11-23-82	SHEET 1 OF 1	

ROAD WOOLWORTH AVE

SIDE WALK

DRIVE WAY

10'-0"

8'-0"

NOTES:
ELECTRIC CO NOTIFIED OF
INSTALL LOCATION OF INCINERATOR
IN RELATION TO ELECTRIC & TELEPHONE
POLE OKED

PREPARED BY PAUL REILLY CO
3035 W VERA AVE
MILWAUKEE, WIS

SCALE: 1/4" = 1'-0"

OFFICE BUILDING

53'-1"

ELECTRICAL REQUIREMENTS:
POWER TO BE 115VAC SINGLE PHASE
WITH FUSED DISCONNECT

FUEL REQUIREMENTS:
PIPING CAPABLE OF DELIVERING
400,000 BTU PER HOUR AT BURNER
AT 6" TO 8" WC

WATER REQUIREMENTS:
WATER SUPPLY CAPABLE OF DELIVERING
6 GPM AT 40 PSI (PRESSURE REGULATED
AND FILTERED) FOR WATER INJECTION
3/4" NPT HOSE CONNECTION FOR CLEAN UP

PLANT STORAGE ROOM

PRIVACY FENCE
8' HIGH AROUND
INCINERATOR

STACK ON TOP OF ROOF

LOCKED
GATE

MASTER
CONTROLS
&
SHUT
OFF

Room TOTALLY ENCLOSED

LIQUID WASTE UNIT

BURNER

OPERATING
CONTROLS

TELEPHONE AND
ELECT. POLE

MODEL 380 BATCH INCINERATOR WITH LIQUID WASTE
DISPOSAL AND ENERGY RECOVERY SYSTEM
COMMERCE INDUSTRIAL CHEMICAL
5611 WEST WOOLWORTH AVENUE
MILWAUKEE, WISCONSIN 53209

75'-4" TO LOT LINE

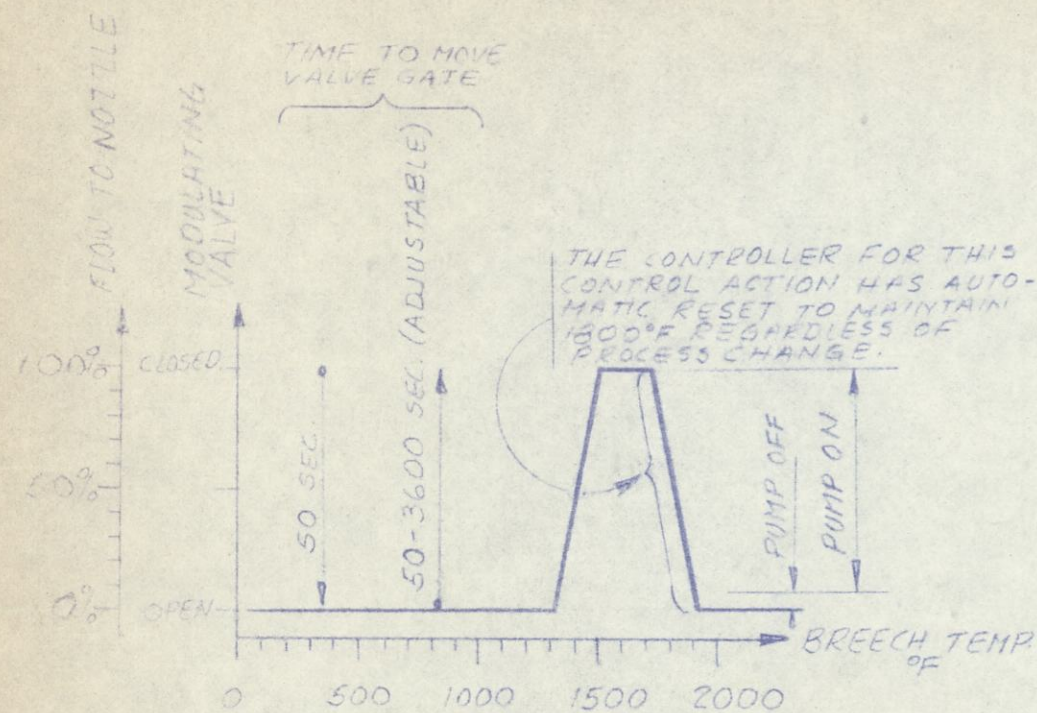
DEC 15 1983

Confidentiality Withdrawn 4/19/84

CONFIDENTIAL

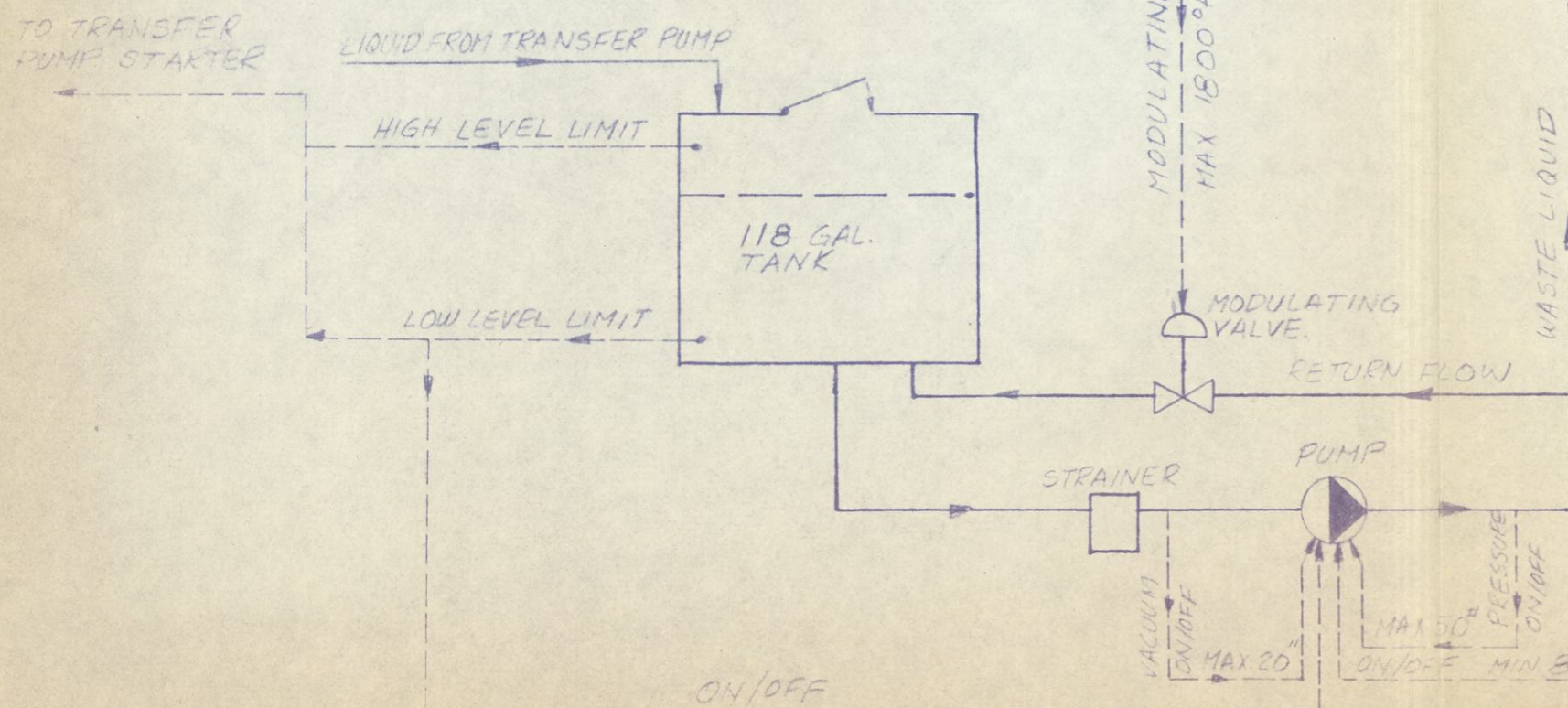
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KELLEY LIQUID WASTE FEEDER FLOW DIAGRAM



MODULATING VALVE
CONTROL ACTION

LEGEND:
--- CONTROL SIGNAL



received
12-21-83

BLUEPRINT

COPY 1

APPENDIX 38

DWG#3B2
3-23-80

This is Kelley

Kelley Company has been a leader in the waste disposal industry since introducing its revolutionary Pyrolytic Incineration System in 1970. During the decade that followed, its Energy Products Division produced nearly 1,000 units with capacities ranging to as much as 2,650 lbs. of solid waste per hour.

Later developments included sophisticated waste-to-energy systems and now the innovative LiquiFire system for liquid waste disposal as well.

Key to the company's success is the same corporate business philosophy that has governed its rise to prominence in the material handling field as the world's largest manufacturer of permanent dock levelers and related loading dock accessories, along with a full line of industrial door products.

Essentially, the company's posture has been: maintain a state-of-the-art leadership in design and engineering ... build a top quality product ... sell it at a fair price ... deliver it when promised ... and back it with a competent service network.

Kelley is a completely employee-owned company with each worker and manager from the president on down, putting a little bit of their personal reputation on the line with every single product that goes into the field.

The company works with a domestic network of more than 50 representatives serving all major markets. They make available a complete program from the planning stage, through turn-key installation, start-up and operator training.

In Kelley, these representatives have the developer of the first successful computer model to project waste disposal savings, energy savings, operating expenses and tax credits. Using IPRIM (Incinerator Performance Reporting Information Model) they can, within minutes, develop a return-on-investment calculation to evaluate financial feasibility and payback.

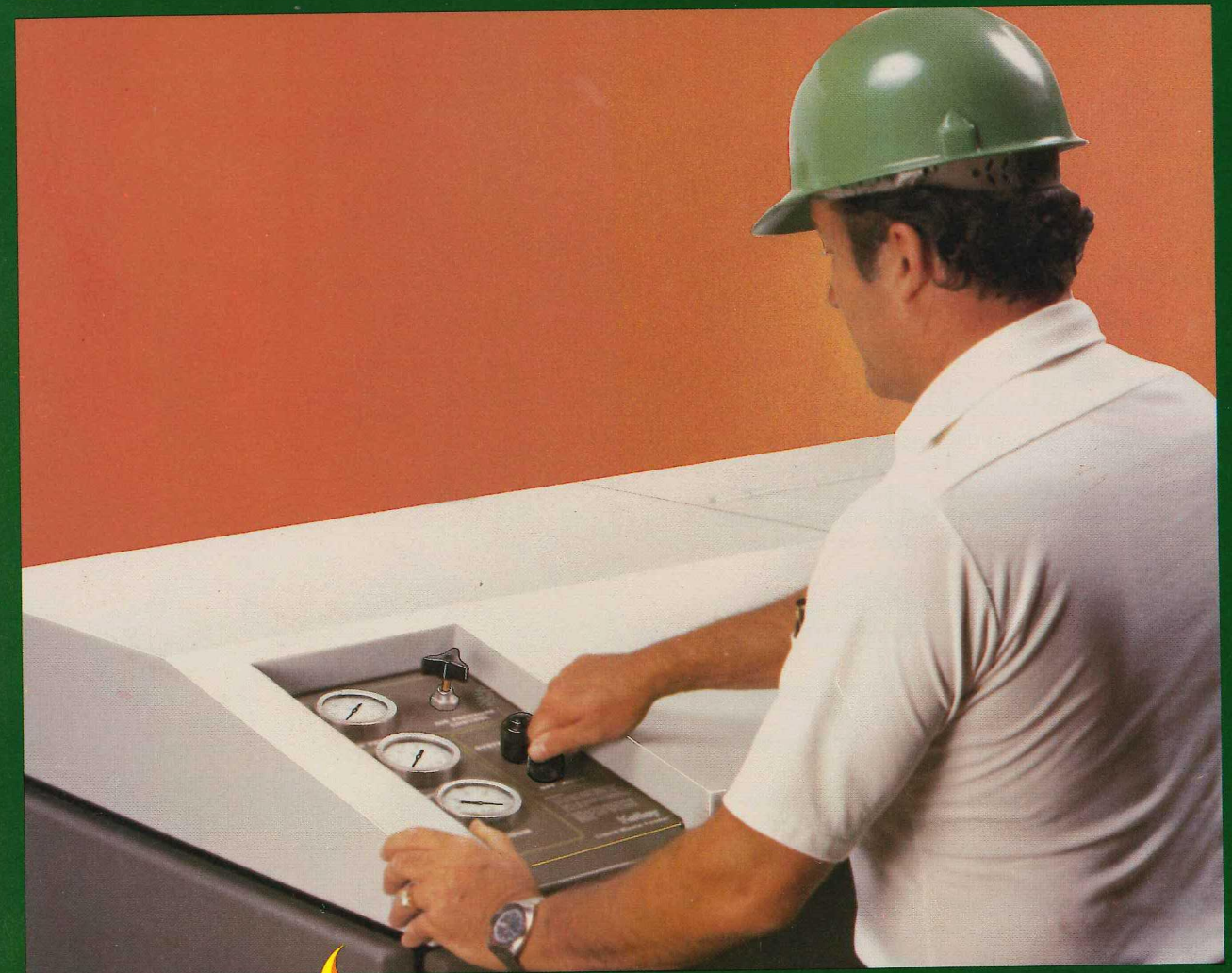
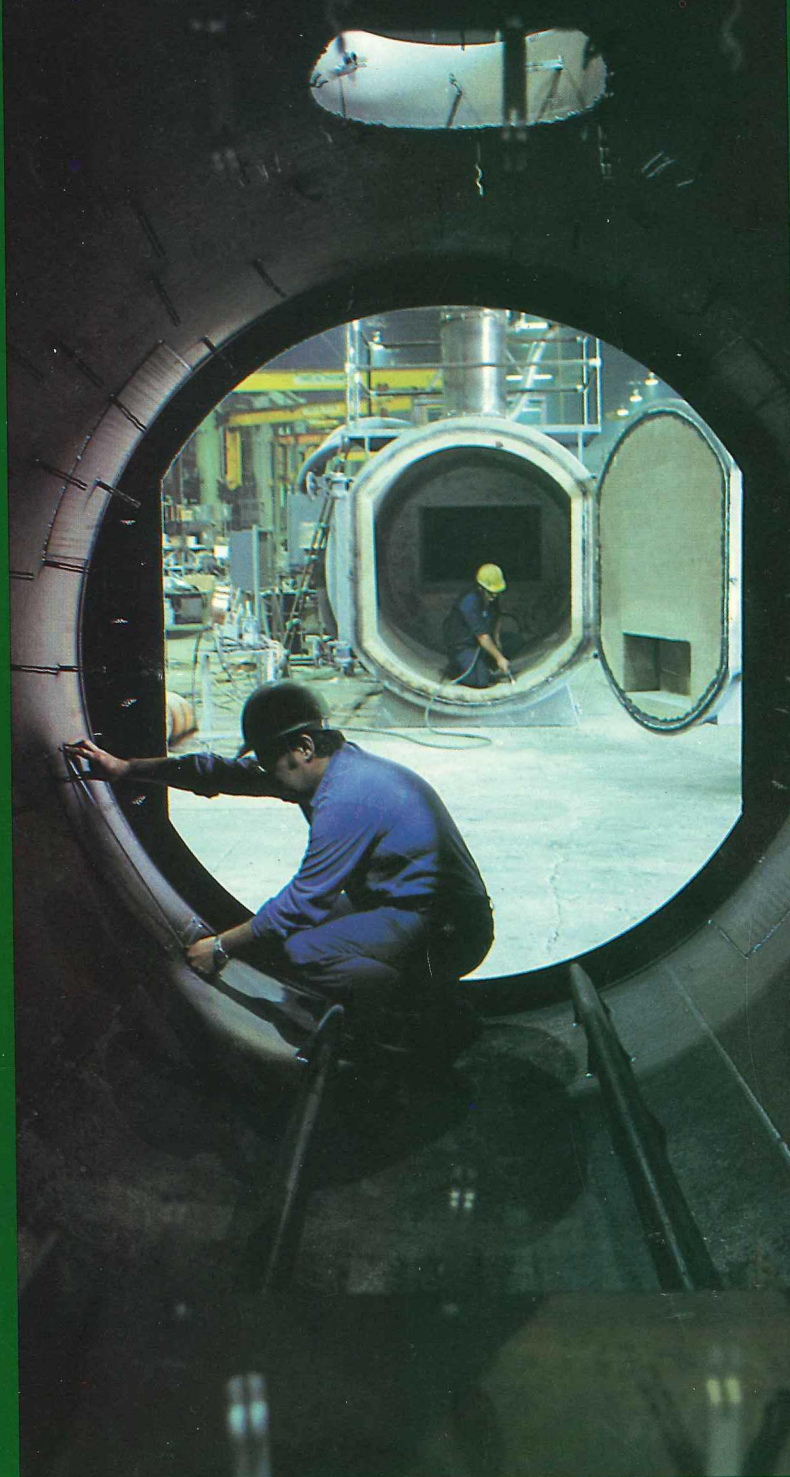
With their track record for innovation, quality and service, it is Kelley's determined intention to be the leader in the ever more important waste disposal/ waste-to-energy industry — today and tomorrow.

**Today's leader.
Tomorrow's leader.**



Kelley Company, Inc.
6720 North Teutonia Ave.
Milwaukee, Wisconsin 53209
(414) 352-1000 Telex 26-661

Workers install refractory linings in several incinerator pyrolysis chambers at Kelley's huge modern production facility in Milwaukee.



 **LiquiFire™**

**Kelley's hot new way
to eliminate liquid waste
disposal costs.**

**Today's leader.
Tomorrow's leader.**



LiquiFire disposes of liquid wastes economically.

With environmental considerations becoming law, the safe, efficient and economical disposal of liquid wastes has become a *must* for many industries.

Recognizing this fact, the Kelley Company has drawn on its extensive waste incineration knowledge and experience to design the new LiquiFire™ waste disposal system. It allows the user to economically dispose of liquid wastes "on-site", reducing disposal costs while complying with environmental codes.

Experience . . .

The Great Teacher

Kelley's full line of pyrolytic incinerators goes far beyond the basic concept of simply burning trash. Our systems thermally degrade wastes to a small amount of dry ash.

Essentially, the Kelley Pyrolytic units operate with wet or dry solid wastes fed into a pyrolysis chamber. Here, the waste material is ignited and fed a controlled amount of ambient air up through the fire bed. Localized combustion in the fire bed produces pyrolysis chamber temperatures of approximately 1200° F.

The oxygen-lean atmosphere in and above the fire bed thermally degrades the waste, producing combustible gases with very little turbulence.

These gases flow to the thermal reactor where they are ignited at temperatures ranging from 1,800-2,000° F. The end result is a flue gas composed primarily of harmless carbon dioxide and water vapor.

Because they generate only extremely small amounts of particulate matter, the units do not require such ancillary gear as scrubbers, precipitators and filters, to meet strict air pollution standards.

Kelley also has taken a further step by harnessing the hot gases generated by the pyrolytic process and, through an Energy Recovery system, putting this heat to use. With a direct connection to either a steam or hot water boiler, our waste-to-energy systems can provide a source for both comfort heating and process steam for a variety of manufacturing operations. At a time when fuel costs continue to escalate, substantial savings can be realized with this type of application.

A pre-engineered, packaged system . . .

For proven operation, easy installation & retrofit

The LiquiFire is a standard, application-tested Kelley Company product, not a custom engineered system. As a result, its capability is well understood and proven over a wide application base. Standardization and packaging means easy installation as well as parts and service availability.

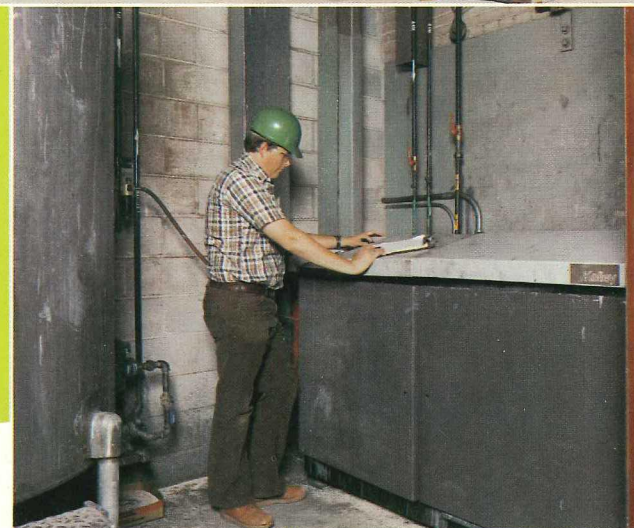
Additionally, because LiquiFire is a self-contained system, it can be adapted to most brands of starved air/controlled air incinerators with good results.

Kelley not only has the technical capability to solve liquid waste problems, but also a proven product — and there is a difference.

Whether it's received in 55-gallon drum "batches" or pumped in directly to the flow control console, successful use of the LiquiFire design requires the attention of user personnel to insure that no unpumpable or unusually dangerous liquids get introduced to the system.



A typical LiquiFire installation has the main console — incorporating pumps, valves, switches and safety devices and a 118-gallon reservoir plus a flow control gauge panel — inside the building, while the pyrolytic incinerator with the attached LiquiFire injection nozzle is located outside.



Individual containers can still be dumped into the flow control console tank, but this installation utilizes a holding tank (left) and transfer pump system to maintain a steady feed into the LiquiFire system.

LiquiFire . . .

How it works

LiquiFire is simply an automatic liquid disposal system which stores, pumps and atomizes liquid waste for incineration in a solid waste incinerator.

The LiquiFire system has three main elements: a tank and flow control unit, an injector assembly and a control box.

All three are precisely inter-linked to insure that the liquid feed rate is fully modulated and controlled by the incinerator exhaust temperature. Feed rate modulates at both upper and lower set points.

To start it, the incinerator pyrolysis chamber is preheated, generally by loading and burning of solid waste. This can also be done with the aid of the auxiliary burner.

When chamber temperature reaches 800° F, the system is activated. After exhaust temperature from the solid waste attains 1,300° F, and a series of control sequences have been activated, the injection nozzle is extended and liquid pumping starts at a low flow rate.

As liquids are injected into the pyrolysis chamber, they are atomized by four compressed air jets in the nozzle. Then they evaporate above the solid waste fire bed, with resulting gases flowing to the thermal reactor where ignition and burnout are achieved.

With heavy solids-laden liquids, gravity will draw unatomized particles into the pyrolysis chamber fire bed, thanks to low velocities and turbulence levels.

In the case of high BTU liquids, temperature will rise and liquid flow will increase until a maximum feed rate is achieved. Should the temperature reach the upper set point, feed rate will decrease to a stable rate.

LiquiFire controls prevent exhaust temperatures from exceeding the incinerator design temperatures that in turn, are related to heat release. As solid waste heat release tapers off, exhaust temperature drops, increasing the liquid feed rate. Essentially, stable operating temperatures can be maintained as long as high BTU value liquids are available.

When liquids with low BTU values — such as water-based liquids — reduce the exhaust temperature to the low set point, feed rate decreases to prevent further temperature decrease. This demands that **with low BTU liquids**, sufficient quantities of **solid wastes must be available** to maintain combustion temperature minimums or the liquid feeder will shut down.

Built-in easy operation with . . . Integrated tank, flow control unit

A completely pre-wired and pre-piped tank/flow control unit contains a pump, motorized flow control valve, manual valves, pressure and vacuum switches, filter screen and 118-gallon holding tank. Doors in the corrosion resistant finish steel cabinet provide easy service access.

A gauge panel permits monitoring of liquid pressure and vacuum, atomizing air pressure and on/off status. All wiring and electric components within the cabinet are housed in enclosures rated explosion proof.

The tank is fillable by pouring manually into the 12" x 12" opening or by utilizing a transfer pump from nearby containers. A bottom valve allows draining of the tank if large amounts of heavy solids accumulate.

The tank has a low level sensor. At low level, the system automatically shuts down and the injector nozzle retracts. This also will occur if the pump's vacuum or pressure exceeds factory pre-set limits.

Two pump options are available. One is a gear pump incorporating Teflon seals, which are compatible with ether, lacquers or lacquer solvents and ketones. The other is a progressing cavity pump for applications where solid particles are involved.

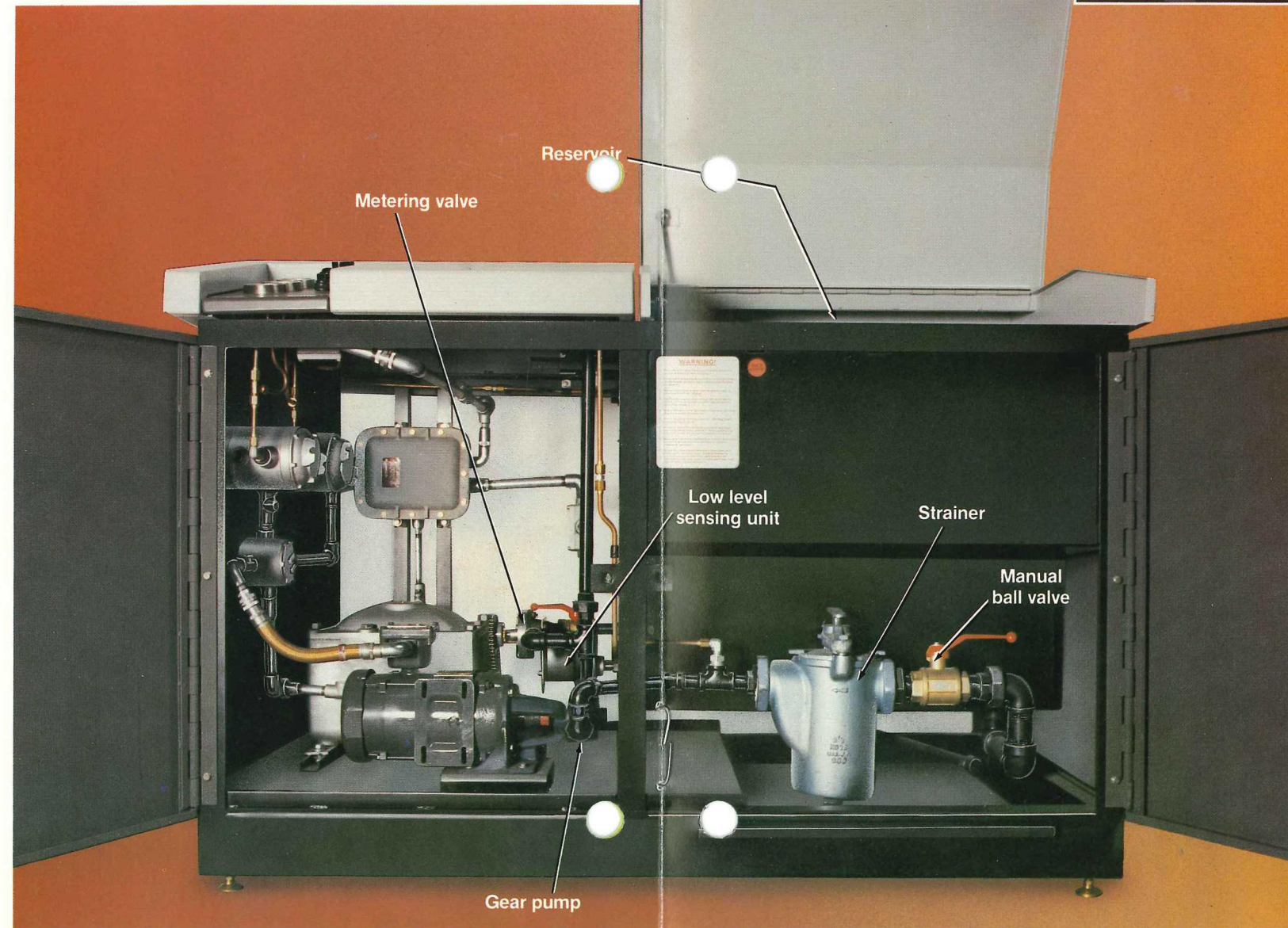
Flow velocity out of the tank is less than 25 fpm — and the line includes a strainer to protect the pump. Further protection comes from a vacuum switch which will shut the system down in case of excess vacuum.

A unique patented liquid flow scheme allows control of liquid flow rate strictly by exhaust temperatures. Liquid flow rate control therefore is independent of liquid pressure. This is important because it allows the system to respond with the correct flow throughout the wide range of viscosities found in liquid wastes.

In action, when the temperature controllers call for more liquid flow, flow rate to the nozzle will increase.

When less flow is called for, flow rate to the nozzle will decrease — all without regard to liquid line pressure, which must only remain within acceptable pre-set limits.

An "on/off" switch at the central control panel initiates the automatic operation of the Kelley LiquiFire system. A separate incinerator control panel at the operator's left is also visible in this view of a typical installation.



An interior view of the console provides an idea of the multiple protective devices and precise modulation components.

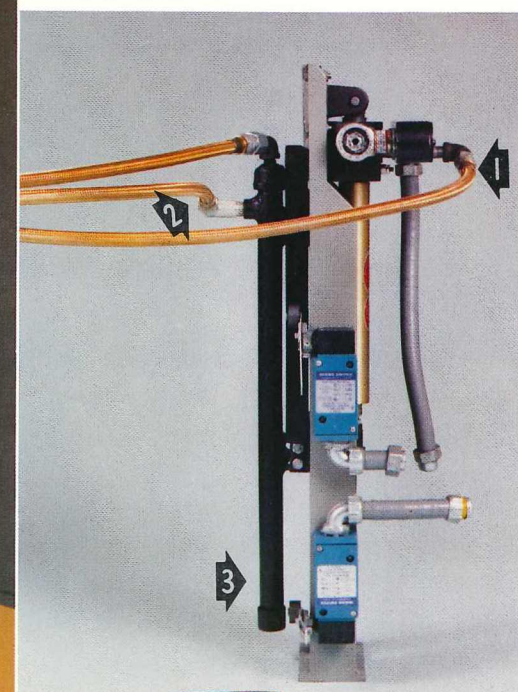
Unique design for less maintenance with . . . Retractable injector assembly

Another unique patented feature of the LiquiFire system is the retractable injector assembly. A pneumatic cylinder extends the injector nozzle into the pyrolysis chamber and automatically retracts it when the pump shuts down. This protects the nozzle from heat when no liquid is flowing.

Nozzle design features a large, $\frac{5}{16}$ " center flow orifice to alleviate fouling or plugging from liquids containing solid particles. Liquid leaves the nozzle at low pressure (5-15 psi) and is atomized by four jets of compressed air.

The liquid lines are automatically purged with air when the pump stops. A time delay on the pneumatic cylinder allows the nozzle to remain extended briefly, letting the injector drain into the pyrolysis chamber rather than on its outside. Similarly, limit switches keep pump and atomizing air from activating until the injector is fully extended.

A unique feature of the LiquiFire system is its retractable injection nozzle. Compressed air (arrow #1) powers the insertion and retraction and also feeds (arrow #2) into the nozzle where it combines with the liquid waste being injected (arrow #3) to assure atomization within the pyrolytic chamber.



Widespread applications . . .

Cover most industries

Most pumpable liquid wastes generated by industry can be handled by the Kelley LiquiFire System, including cutting oils, lube oils, alcohols and solvents.

Some good examples of fluid wastes that are acceptable include:

Acetone	Lacquer Solvents
Alcohols	Lard
Anti-Freeze	Latex
Asphalt	Linseed Oil
Cane Sugar Liquors	Methanol
Castor Oil	Methyl Acetone
Coconut Oil	Methyl Ethyl Ketone
Catsup	Mineral Oil
Citric Oils	Molasses
Corn Oil	Naptha
Cotton Seed Oil	Oleic Acid
Creosote Oil	Paint Thinner
Diesel Fuel	Soy Sauce
Ether	Starch
Ethylene Glycol	Syrup
Fatty Acids	Tar, Bituminous
Formaldehyde	Toluene (Toluol)
Glycerine	Transmission Fluid
Glycols	Vegetable Juice
Grape Juice	Vegetable Oils
Grease	Vinegar
Hydraulic Oils	Varnish
(Petroleum)	Whey
Ketones	Whiskey and Wines
Lacquers	Xylene (Xylol)

There are some liquid wastes whose properties make them inappropriate for incineration. These include any liquid with a halogen (Chlorine, Fluorine, Bromine or Iodine) content in excess of 1 percent. When present in flue gas, the halogens tend to combine with moisture and may form acids such as hydrochloric acid, which can be harmful to equipment and the environment.

Liquids with a sulphur content in excess of 1 percent, also should be avoided. If present in the products of combustion, sulphur will combine with moisture to form sulphuric acid, another potentially harmful substance.

Some liquids, of course, have properties or chemical makeups which cause them to react when they are mixed with each other. Such combinations may harden to form solids or semi-solids, become unstable and explode or yield other undesirable effects.

Your Kelley representative will, in any case, assist you in compiling a comprehensive Liquid Waste survey and he also can draw on the expertise of our corporate engineering staff, whenever necessary.

In this Model 1280 system, capable of a maximum feed rate of 55-gallons an hour, the thermal reactor section is positioned horizontally for direct connection to an adjacent heat recovery boiler generating 90 psig steam for process use and plant heating.



Depending on the composition of the liquids being disposed of, set point dials inside the central control panel can be adjusted to assure optimum combustion temperature is maintained.

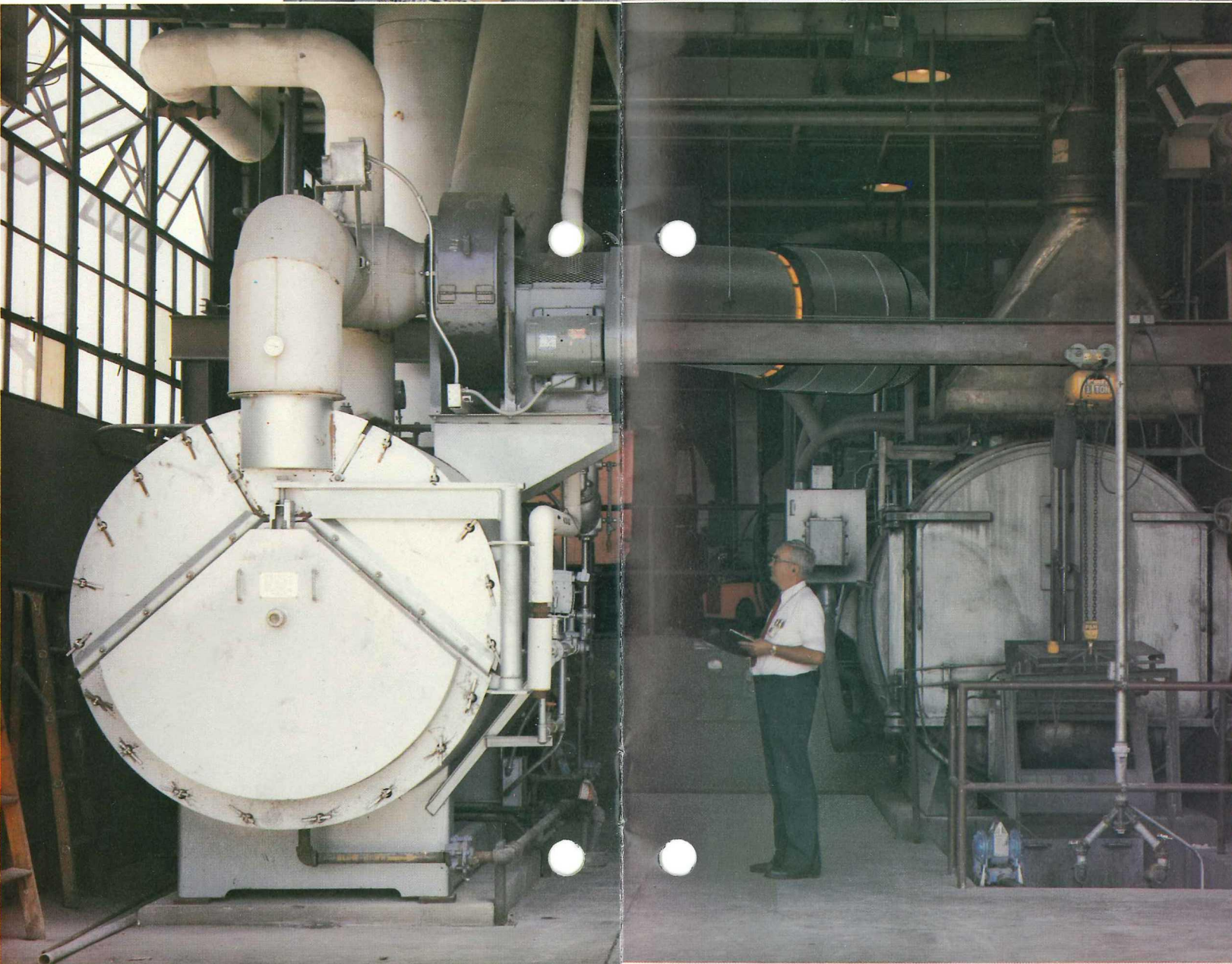
Economic justification . . .

Energy cost savings aid rapid payback

When combined with dramatic cuts in hauling and disposal costs, this "energy bonus" can mean quick payback and a dramatic return on investment. Actual payback will depend on the quantity and BTU value of the waste. As an example, the recoverable energy of a 55-gallon drum of waste toluene approximates that of the same amount of No. 2 fuel oil.

Your Kelley representative can specify formulas and procedures for calculating a predicted payback period and rate of return for your specific application. Additionally, he has access to the Kelley IPRIM system, a computer model designed to produce a complete operational and financial analysis based on your projected application and operating conditions.

But, remember that even without savings generated through energy recovery, hauling and disposal savings alone will provide dramatic economies.



Solenoids in a control box located near the injection assembly govern the flow of compressed air that atomizes liquids as they leave the tip of the nozzle and also automatically purge the liquid lines with air, each time the pump stops.



With disposal costs ranging from \$75-100 per barrel, paybacks for users such as this major can manufacturer's plant which generated 1,000-gallons of liquid waste daily, can be realized in less than a year. This does not even consider the energy recovery cost savings possible nor disposal expense saved in concurrent burning of solid wastes.